Distr.
GENERAL

UNCTAD/COM/88
9 July 1996

ENGLISH ONLY

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

ORGANIC PRODUCTION IN DEVELOPING COUNTRIES: POTENTIAL FOR TRADE, ENVIRONMENTAL IMPROVEMENT, AND SOCIAL DEVELOPMENT

Report by the UNCTAD secretariat

GE.96-51294

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I. INTRODUCTION

Despite an increasingly marked shift in developing countries' economic structures towards industrial activities and services, agricultural production remains central to a number of them, if not on a national, then on a regional scale, remaining a major provider of employment[1], generator of income[2] and foreign exchange[3]. Better food supplies for growing developing-country populations and increased foreign exchange earnings from cash crops have often been associated with a wide proliferation of High External Inputs Agriculture (HEIA[4]) practices, encouraged under the Green Revolution. Despite an undeniable contribution to the rise in yields, these production methods have increasingly come under scrutiny for their adverse environmental and social effects, namely (a) the cost of HEIA practices to the environment[5] and human health, and (b) a further marginalization of traditional, frequently more environment-friendly farmers unable to compete with high-input agriculture.

Confronted with the effects of environmental degradation, as well as with problems of rural poverty, developing countries could identify (or rediscover) and implement alternative agricultural production systems, allowing for the preservation of the environment without compromising food security and the objectives of economic and social development. A number of options have been suggested and actively promoted, among others by NGOs (such as IFOAM[6]) and international organizations (FAO 1991, UNDP 1993; IFAD, and others), backed by the donor community, all of them endorsing the concept of sustainable agriculture in a variety of its forms (for details see box 1). In addition, efforts should also focus on using environmentally sound technologies in subsequent processing of agricultural products.

The attention paid in this regard to organic agriculture and environment-friendly processing of food and non-food products is associated with the overall effort towards making agriculture more sustainable. In this context, despite its

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[1] According to FAO (FAO, 1992), over 360 million rural households are involved in agricultural production in developing countries.

[2] The average share of agriculture in total GDP was 17 per cent in 1991 for developing countries as a whole, with significantly higher proportions for low-income and least developed countries (33 and 39 per cent respectively) see UNCTAD, 1994b.

[3] UNCTAD data (UNCTAD, 1993b) show that developing countries derive close to 20 per cent of their foreign exchange earnings from agricultural exports (19 per cent in 1990-1992). The figure is even higher in the case of highly commodity dependent countries, particularly in Africa.

[4] Agricultural system characterized by high use of agro-industrial inputs (fertilizers, pesticides, hybrid seeds), high degree of mechanization and high inputs of fossil energy. It is associated with intensive agricultural production and mostly large-scale enterprises (Kox and Stellinga 1992).

[5] Excessive dependence on external inputs has undermined the self-sustainability of eco-systems in agricultural areas. Moreover, environmentally insensitive practices and misuse of chemicals have frequently resulted in a number of negative environmental externalities, such as soil depletion and erosion, freshwater depletion, contamination of soils and water courses, losses of biodiversity and damages to workers' (Karp 1995, Faeth 1994) as well as consumers' health. In the same vein, the processing of agricultural commodities has often become a major source of pollution, stemming mainly from the lack of adequate waste disposal and waste treatment systems (May 1993, Segura and Reynolds 1993, Khalid 1995, UNEP 1995).

[6] International Federation of Organic Agriculture Movements, representing about 500 member organizations and institutions involved in organic farming and trade from 95 countries all over the world.

currently prevailing niche character and a number of other limitations[7], organic production can make a contribution, in the developing-country areas practising organic methods, to the improvement of both the state of the environment and, as described below, the economic situation of rural populations, the latter particularly as a result of increased incomes and job-creation effects.

The advantage on which organic products (foods and textile fibres in their raw and processed forms) can build in order to improve the environment and the economic situation of farmers is the existence of a still small, but rapidly expanding, demand for environmentally preferable products in developed, but also, even though to a much lesser extent, in developing countries (UNCTAD, 1995a). Properly inspected and certified organic products can address the concerns of environment- and health-conscious consumers who are also willing to pay a premium for these products. Certification based on agreed sets of controllable standards provides them with a guarantee of credibility vis-à-vis potential consumers. Conversely, products originating from other forms of sustainable agriculture, which often lack such sets of standards, face practical problems in this respect[8].

The production and sale of certified organic products therefore present a niche opportunity for two categories of developing-country farmers: (a) those consciously wishing to abandon environmentally unfriendly, high-inputs practices and convert to organic farming, and (b) those whose traditional production practices are basically organic but who have not yet been able to take advantage of the environmentally benign nature of their methods and products in terms of increased sales and prices.

This study has been undertaken in the framework of a broader programme on environmentally preferable natural products, carried out by the Commodities Division of UNCTAD. Its main objective is to assess the potential of organic production and environmentally friendly processing in developing countries in the light of existing and expected demand for these products and suggest ways and means of enhancing their contribution to the attainment of developing-country environmental and developmental goals. Section II aims to clarify the concept of organic production and assess the extent of economic and social, as well as environment-related benefits it can provide to developing countries which opt for the introduction of organic practices. The market potential which is the prime factor impacting on the current state and prospects of organic production is further examined in Section III. Section IV provides an overview of major organic products supplied by developing countries. Section V identifies major obstacles to the development of organic production and suggests

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[7] A universal application of organic agriculture practices is constrained by possible bottlenecks whose existence may consequently favour the use of other sustainable agriculture systems (see box 1). Among them are concerns about:

- food security on a country scale. The evidence available so far is inconclusive, but the generally lower level of yields in organic agriculture is sometimes pointed to as a factor which may have a negative bearing on the countries' capacity to feed their populations;
- economic viability. It is argued that in some areas (for example, where the incidence of pests is too high or where the loss of soil nutrients cannot be made up for by organic practices), yields may fall to economically unsustainable levels compromising thereby the very existence of this type of production.

[8] Even though a controlled use of chemicals is more difficult to define and certify than a complete ban devised by organic agriculture, a Rainforest Alliance initiative should be mentioned in this regard, concerning the certification of "sustainable" products such as bananas, coffee, and others, under the EKO-O.K label. In the same vein, various eco-labelling initiatives have been started in developed countries certifying environment-friendly production of textiles. However, controversies frequently arise in this context about the strictness of eco-labelling standards which some consider too high, others, on the contrary, excessively low, and, as a result, consumers may get confused.

measures to alleviate them, through the concerted efforts of all actors involved. General conclusions are presented in Section VI.

II. CONCEPT OF ORGANIC PRODUCTION

A. Definition

Organic agriculture is the sustainable agriculture system with the strictest environmental requirements (see box 1). The concept was born as early as the 1920s in Germany and Switzerland, but it gained wider acceptance only in the 1980s when national and international standards were set and developed country governments started to introduce schemes encouraging farmers to convert to organic practices.

From a technical point of view, the key characteristics of organic farming can be summarized as follows (UNDP 1992, FAO and WHO 1993, IFOAM 1994, Lampkin and Padel 1994, de Vries 1995) :

(a) lower intensity in terms of reliance on synthetic and other external inputs (e.g. energy), as compared with conventional (high inputs) production methods. The farm is viewed as an autonomous system which should be as self-sustaining as possible, with only a limited resort to external, preferably renewable inputs on the one hand, and minimization of waste outflows on the other hand.

(b) higher biological intensity of production. This should be achieved in the following ways:

- protection and enhancement of the long-term fertility of soil by
  - maintaining organic matter levels and replenishing nutrients through the use of composted manure, crop residues and other organic materials[9];
  - maintaining nutrients in the topsoil and prevention of nutrient leaching through the use of green manures (fixation of nitrogen) and agroforestry practices;
  - use of appropriate soil management techniques, such as crop rotation or fallow periods.

  Only a limited number of mineral substances (like rock phosphate) are allowed, the use of synthetic fertilizers being forbidden.

- weed, disease and pest control relying on natural methods such as
  - use of resistant varieties;
  - appropriate cultivation measures (crop rotation, uprooting, quarantine zones, mixed cropping, intercropping);
  - biological pest control (natural enemies - parasites, predators, birds; botanical pesticides; pheromone traps, etc.)
  - manual, mechanical and thermal weeding.

  The use of synthetic substances to combat pests and weeds is not authorized.

- extensive livestock management, paying regard to animal needs with respect to nutrition, sheltering, health, breeding and rearing. Livestock should be fed with 100 per cent organically grown feed. The use of synthetic growth promoters and stimulants is forbidden, whilst legally required vaccinations are allowed. The use of synthetic drugs should be minimized, but cannot be completely excluded for the time being.

Although the production phase, where the overwhelming majority of positive environmental externalities occur, is crucial for organic products in terms of the impact on the environment, attention is also paid to upstream phases of their life cycle, with a view to minimizing adverse environmental impacts which may occur during the processing, consumption and disposal of these products. A

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[9] It should however be noted that the use of fertilizers, irrespective of their organic or synthetic origin, should be kept under control. The resort to organic manure does not automatically exclude the possibility of environmental damage (see ECE and FAO 1991).

Box 1 - More sustainable agricultural systems

Sustainable agriculture has emerged as the most agreed-upon term to synthesize a variety of concepts and perspectives associated with agricultural practices that differ from conventional high external inputs agriculture.

High External Inputs farmers who decide to become more environmentally friendly in a gradual manner usually start by reducing the level of inputs, particularly chemicals. The first step towards this objective is the introduction of Integrated Pest Management (IPM), complemented by Integrated Nutrient Management (INM) and Integrated Weed Management (IWM) and evolving finally into a more comprehensive Integrated Farming System (IFS). Further developing the IFS, the farmers move forward to LEISA (Low External Inputs Sustainable Agriculture) and end up with an Organic Agriculture System. At the same time, some farmers also switch to organic agriculture instantaneously, without going through all the stages described above.

IPM is a strategy of selective use of agrochemicals, biological methods, genetic resistance, and appropriate management practices.

INM is based on the use of carefully derived combinations of mineral and organic fertilizers, complemented by appropriate crop practices such as tillage, rotation and moisture conservation.

IWM relies heavily on cultural practices such as mulching or mechanical tillage during the first weeks of crop growth. This allows the crop to become well-grown before the emergence of weeds and to compete effectively with weeds by shading them.

IPS (or Integrated Production) aims at optimizing the use of chemical and biological means in combatting pests and weeds and in supplying plant nutrients. Chemical substances should be avoided as far as possible, but can still be used in carefully calibrated doses. In addition to environmental improvements, also maintaining farm employment and income are among the objectives pursued.

Integrated Production allows for conventional systems, particularly HEIA, to be modified without a complete change in perspective. It is therefore seen as a compromise between intensive conventional and more extensive low/input and organic approaches.

LEISA is a form of agriculture which makes optimal use of locally available natural and human resources. External inputs such as synthetic fertilizers, pesticides, hybrid seeds and machinery are not excluded, but are seen as complementary to local resources. Attention is also paid to the social and cultural appropriateness of the system and its economic viability. With regard to the use of fertilizers, the concept of LEISA is sometimes modified into BEISA (Balanced External Inputs Sustainable Agriculture), putting emphasis on the fact that what matters is not a complete rejection of the use of inputs, but rather their balanced supply. This is specially relevant in the developing country context since their main problem may not always be pollution (due to excessively high intensity of farming), but rather depletion of soil nutrients (resulting from excessively low intensity of farming).

Organic Agriculture is a system aiming at the enhancement of the long-term fertility of soil through the use of organic fertilizers and appropriate cultivation practices. Synthetic fertilizers are not allowed whereas a limited range of mineral substances can still be used. Weed, disease and pest control rely on natural methods and the use of chemical substances for these purposes is not authorized.

Source: FAO 1992, UNDP 1992, Olson 1992, FFTC 1992, Lampkin and Padel 1994

"cradle-to-grave" approach is thus adhered to which allows organic products to make substantiated claims to environmental friendliness, capable of influencing potential consumers' purchasing decisions (UNCTAD 1995a).

Processing of organic products[10] should preferably be based on mechanical, physical and enzymatic methods or the use of (micro)organisms. Chemical processing may only be allowed in exceptional cases. Moreover, only a restricted range of substances selected on the grounds of environmental neutrality may only be used in organic processing. As regards foods, very few processing aids are used, with the intention not only to make the product environmentally friendly, but also to preserve its authentic taste which is appreciated by particular groups of consumers. When necessary, natural ingredients (food additives and flavourings) and processing aids are preferred (IFOAM 1994, EC 1991). In organic textiles processing, preference is given to natural or at least biodegradable substances (SKAL 1994). Chemicals are sometimes used as well (P. Hohmann, Remei AG, pers. comm.), but only after a careful selection based on a thorough consideration of their environmental impact. Plastics and galvanized metals should be avoided in the manufacturing of clothes, with preference being given to biodegradable substitutes.

Being practically chemicals-free, organic products do not pose environmental or health problems at the consumption stage. Since they are also biodegradable, their disposal does not raise any environmental concerns either. As the product itself is not harmful to the environment, the only potential environmental problem may be associated with packaging. For this reason, the amount of packaging should be kept at a strict minimum and environmentally friendly materials are preferable (such as paper and cardboard, preferably recycled ones).

B. Major attributes of organic production

As compared with competing agricultural systems, organic agriculture, as well as other forms of sustainable agriculture, claim to be more environment-friendly (in terms of environmental preservation/improvement as well as health benefits for consumers through the provision of high quality, healthy food) and socially beneficial (in terms of providing higher incomes and additional jobs). However, concerns are sometimes expressed about its economic viability in terms of withstanding competition from other, less environment-friendly production systems. In order to make the concept of organic agriculture work in the longer term so that it can be considered as superior to conventional systems, it is important that its economic results are also satisfactory. Only an environmentally sustainable system can persist over the long run and be economically and socially viable. Likewise, it must be profitable, or it cannot be sustained economically no matter how environmentally sound and socially beneficial it may be.

The evidence concerning the record of organic agriculture as regards these three criteria is relatively abundant for developed countries. It is much less so in the case of developing countries for which comprehensive studies still need to be undertaken. In addition to the sources relating to developed countries, the text below is based mainly on the evaluation of experiences from individual projects in developing countries, a number of them supported by importers, including fair trade organizations, or donors. The limited scope of available data does not allow the drawing of general conclusions valid for all cases of organic production in developing countries.

1. Environmental sustainability

The use of organic production methods entails environmental benefits, making this system more environment-friendly (for criteria of environmental friendliness, see UNCTAD 1995a) than conventional high external inputs agriculture. Although consumers often perceive product-related health benefits, occurring at the consumption stage, as decisive, most organic production environmental benefits are in fact associated with the production phase (production and processing methods) and result in an enhancement of the three basic functions of the environment, namely (a) supplier of resources, (b) assimilator of waste and (c) provider of services.

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[10] The same methods can also be used for non-organically grown products and make them environmentally more friendly. However, this does not allow for labelling them as organic.

(a) "Supplier of resources" function of the environment

In the context of the environment's capacity to supply resources, organic farming has two main advantages as compared with high inputs agriculture: better capacity for soil conservation and improvement, and lower usage of energy.

Organic farms are found to have a significantly higher organic matter and nitrogen content than the soil of conventional farms. Due to lower erosion, the soil of organic farms also has a larger and more active microflora, better tilth and soil structure in terms of a lower bulk density and a higher respiration rate, and a thicker layer of fertile topsoil. Organic farming thus is more effective in maintaining productivity and tilth of the soil and reducing the rate of erosion (FFTC 1992, UNDP 1992, Greenpeace 1992, UNCTAD 1994a).

Organic agriculture offers significant opportunities to reduce fossil fuels consumption. Possible energy savings are estimated at as much as 50 per cent (Joint Committee for Ecological and Biodynamic Farming 1991) and stem particularly from the fact that (a) organic farmers do not use synthetic fertilizers which require large amounts of energy to produce, (b) cultural practices are less energy-intensive (e.g. human force and animal traction are often used instead of energy-consuming machinery).

(b) "Assimilator of waste" function of the environment

Unlike easily soluble synthetic fertilizers, manure and compost used in organic agriculture act as slow-release agents. Moreover, an improved structure of soil enhances its capacity of water retention, drainage and aeration. As a result, less leakage of nutrients occurs[11], leading to lower levels of water pollution (Blake 1993). In the same vein, pollution due to toxic pesticides and herbicides used in conventional production is inexistent under organic practices. Moreover, emphasis put on recycling farm wastes largely eliminates the problem of waste disposal.

(c) "Provider of services" function of the environment

Organic farming offers advantages in terms of a better care for landscape (Redman 1992). Moreover, the maintenance on organic farms of a wide range of plant types and species and the use of sustainable agriculture practices preserving natural habitats (such as hedging, or the cabruca system[12] in coffee growing, for example) lead to an increased biological diversity. Important wildlife benefits are therefore frequently attributed to organic agriculture systems (Greenpeace 1992; Perfecto, Rice, Greenberg, Van der Voort, undated; Rozyne 1994, Stangel 1995).

2. Positive social effects

Organic agriculture claims to bring about positive socio-cultural effects stemming from: (a) social acceptability of suggested production practices and (b) the contribution of organic farming to the mitigation of poverty through increased producers' incomes as well as employment generation.

(a) Social acceptability

As a matter of fact, the concept of organic agriculture is very close to indigenous culture and the production techniques which had been practised in developing countries prior to the Green Revolution and which have survived in

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[11] However, since nutrients contained in organic manure are released slowly, larger quantities of organic fertilizers may sometimes be required in order to supply the plants with the same amount of nutrients. As a result, leakages may also occur which are higher than those in conventional agriculture (see Nykänen 1995).

[12] Cabruca is a traditional agroforestry system whereby cocoa and coffee seedlings are planted within the native forest and shaded by original trees. Among the main environmental advantages of the system are provision of shelter to a number of wildlife species, and improved erosion control by larger trees.

some regions up to now. For example, agriculture in East Asia has traditionally relied on the recycling of organic waste. The care of nature and soil (called Mother Soil) is one of the major cultural elements for indigenous populations in Latin America. Traditional practices are often soil- and wildlife-friendly, rely heavily on natural methods of controlling pests and are therefore compatible with the organic approach. For these reasons, they may be accepted or re-adopted relatively easily.

In the developing country context, organic agriculture methods may therefore draw both on indigenous practices and modern knowledge relating to environment-friendly production techniques. Since the environmental and socio-economic situation of each region/farmer is location-specific, there is a need to develop solutions tailored to different individual contexts. Farmers' participation in the development of agricultural systems adapted to their particular conditions contributes to an active endorsement of organic practices, raises the interest in experimenting with new ideas and practices and, consequently, contributes to the success of organic projects (Caldas 1995).

(b) Poverty alleviation and rural development

Of importance for the alleviation of rural poverty may be the potential impact of organic agriculture on incomes, which are frequently reported to improve[13] as a result of above all (a) higher prices of organic products (environmental premia), and sometimes also (b) higher share of producers in the benefits derived from the sales of their products if the product is moroever traded under fair trade conditions.

In recent years there has been a considerable effort particularly by NGOs to incorporate social criteria into previously rather technically-oriented organic agriculture standards (IFOAM 1994). As a matter of fact, in the late 1980s and early 1990s, the philosophy and practice of organic agriculture, especially as regards projects in developing countries, have converged with those of alternative (fair) trade, which had already been considering social issues as central since its inception two decades ago. Consonant with the endorsement of socially oriented criteria by IFOAM, fair trade organizations have in turn expanded the scope of their activities to include agricultural, in particular organic products. This merging of views has thus contributed to the perception of a number of organic products exported from developing countries as both environmentally and socially beneficial (UNCTAD 1995a)[14].

However, social criteria are reflected only in voluntary, mostly NGO standards, not in mandatory norms adopted by Governments and stipulating the conditions with which the product has to comply in order to be entitled to an organic label. As a result, a great part of organic products are traded on purely commercial terms, the main source of funding for social improvements being organic premia.

Organic agriculture can also generate jobs, which is important to developing countries that lack employment opportunities in their rural areas.

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[13] Improved incomes are reported from China and Pakistan, for example (L. Lianfu, China Green Food Development Center; S.A. Hussain, Pakistan Organic Farmers Association, pers. comm.), as well as from organic coffee and cotton projects (Equal Exchange, undated, Caldas 1995)

[14] Emphasis is put by fair traders and socially responsible importers on the improvement of social conditions of producers involved in organic projects. Financial resources for these purposes may come, in addition to organic premia, also from higher ("fair") prices passed on to producers. These are made possible, among others, by shorter producer-consumer chains resulting from the establishment of direct contacts between primary producers or their associations in developing countries, and importing organizations in developed countries, bypassing intermediaries. Moreover, special social funds are sometimes established which are used to finance community development activities, related both to production, processing and marketing, and to the improvement of public services (such as transport, education, health care), thereby providing direct benefits to producers (Wong 1993, Equal Exchange undated, Hohmann 1994, Caldas 1995, UNCTAD 1995a).

Organic agriculture is generally more labour-intensive (Lampkin and Padel 1994, de Vries 1995, for example). The result is a frequent labour-for-energy and labour-for-chemicals substitution. Machines are often replaced in organic agriculture by human force or animal traction. Moreover, human labour is used instead of conventionally applied chemicals. For example, instead of using herbicides, weeding is done manually. Cotton is not defoliated before harvest, which is a necessary prerequisite for machine picking, but harvested manually as well. "Natural" methods of combatting pests require more labour for crop scouting. A major influence on labour requirements is also the more diverse structure of activities on organic holdings, with a loss of benefits from specialization and economies of scale, but a more even distribution of labour requirements over time and a better food security.

3. Economic viability

Organic agriculture can only be sustained in the long run and, consequently, provide the above-mentioned environmental and social benefits if it is economically viable. In this context, a distinction should be made between its economic performance from the viewpoint of society as whole, and a purely financial assessment of the viability of particular business operations. An assessment of economic viability on a society-wide basis means that a remuneration of organic farming for positive environmental services that it provides is fully reflected in the calculation (internalization of positive environmental externalities, or environmental benefits) and, at the same time, environmentally less friendly practices are discouraged (internalization of negative environmental externalities, or environmental costs). If such an internalization of environmental and social costs and benefits took place, organic farming would appear as economically justified[15].

As yet, however, the discussion of economic viability focuses on financial performance from a private point of view of a farmer. While a sufficient internalization of environmental costs seems rather unlikely to happen in the near future, the economics of organic production is often positively affected by the recognition of organic agriculture's environmental benefits in the form of price premia or, in developed countries, also environmental subsidies. Under the current conditions of non-internalization of environmental costs and a partial internalization of environmental benefits, the available evidence about the financial performance of organic farms in developed countries does not permit drawing generally valid conclusions (Lampkin and Padel 1994 or Greenpeace 1992). The evidence for developing countries based on the evaluation of individual projects shows that organic farming may be economically viable when environmental (and fair trade) premia can be recovered and when an available market is identified. However, in order to get a complete picture of the financial performance of organic production in developing countries, there is still the need for a more systematic review of this issue.

Despite the fact that the financial viability of organic farming activities appears to be highly case-specific, it is possible to draw some general conclusions regarding the comparison of individual cost and return elements under organic and conventional production systems (see table 1).

Most comparative studies show that crop yields in organic agriculture are lower than in conventional systems. However, it should be borne in mind that the results of such a comparison are highly dependent on the level of yields in conventional agriculture. The relative yield differences are therefore the greatest for crops (de Vries 1995) and countries which produce intensively, and the least for those where conventional production systems are typically less intensive (Lampkin and Padel 1994). Since developing countries may often fall under the second category, the loss in yields may not be so marked. Cases are also reported from developing countries where yields are maintained or even increase (UNDP 1992, Faeth 1994, FFTC 1992). Moreover, despite a possible initial fall in yields, established organic farms can enhance their physical

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[15] For example, a study by the Dutch management consultancy firm Berenschot on the economic effects of conventional and organic methods in Dutch agriculture concludes that if environmental costs are internalized, conventional product prices would rise by 19 per cent, thus becoming 5 per cent higher than those of organic products (quoted in Haest, undated).

productivity once the nutrient status of the soil improves (de Vries 1995).

Table 1 - **Factors affecting the economics of organic as compared with conventional farming**

yields	generally lower (by 10-30 per cent on average)
prices	generally higher (by 10-30 per cent on average)
input costs	generally lower (by 10-40 per cent on average)
labour costs	generally higher (by 20-50 per cent on average)

Source: based on Lampkin and Padel 1994

Note: Figures in brackets should only be considered as indicative, especially as regards labour costs, since they are essentially based on data drawn from the developed country context.

Premium prices are widely available in developed country markets, especially in Europe, but the size of the premia varies among crops and countries, depending primarily on the availability of markets for particular products. For example, milk and livestock are often sold at conventional prices due to the frequent absence of a special organic market for these products. The same is reported from developing countries where price premia are comparatively rare, due to the absence or underdevelopment of organic markets (S.A. Hussain, Pakistan Organic Farmers Association, pers. comm.). In Canada, the United States and Australia, premium prices are generally less common than in Europe, particularly for non-horticultural temperate zone crops.

The replacement of external inputs by resources available on the farm, by different agricultural management practices and by farm labour leads to reduced input costs under organic management. This can lead to substantially lower costs of fertilizers and concentrates for animal nutrition, and virtually no costs on pesticides and herbicides, which are particularly high in conventional developing country agriculture. Higher costs may however be sometimes associated with purchases of organic seeds, plants and rearing stock.

Labour costs may be higher in organic agriculture, mainly as a result of increased labour requirements for organic farms, especially in developed countries where the level of wages is relatively high. However, this may not necessarily be the case in most developing countries where the availability of relatively cheap and abundant unskilled labour is advantageous to organic agriculture since it confers on them a competitive edge in this respect.

The overall financial viability of organic farming varies from case to case. In general, lower average yields are partly (or wholly) compensated by lower input costs, potentially lower labour costs (depending on wage rates) and environmental premia. Based on the interaction of these variables, three hypothetical cases/sets of conditions can be distinguished related to the benefits of internalization under which organic production may currently, i.e. in the prevailing absence of internalization of environmental costs in competing products, be financially viable:

(a) No internalization-of-benefits case covers activities which are financially viable even if no premium markets are available and production is sold at conventional market prices. The prerequisite for this to happen is the attainment of important cost savings (from the reduction in purchases of external inputs) that offset possibly lower yields, or ideally, the maintenance or even an increase in yields along with cost reduction.

(b) Partial internalization-of-benefits case includes activities which are financially viable if a premium can be obtained. Consumers show a willingness to pay for (a part of) environmental and social benefits linked to the production and consumption of organic products. This payment helps the farmer attain the limit of financial viability at the enterprise level, compensating for the loss in yields.

(c) Comprehensive internalization-of-benefits case embraces a range of activities which require additional financial assistance (beyond environmental premia which may be available in the market) in order to become financially viable. In this case, society recognizes the importance of environmental services provided by organic farmers and translates this recognition into a payment of environment-related agricultural subsidies. Given the fact that the availability in developing countries of budgetary outlays for environmental subsidies is likely to be limited, organic farms which do not fit into the first or second category may be difficult to sustain financially.

III. MARKET POTENTIAL FOR ORGANIC PRODUCTS

A. Market size and trends

To date, most certified organic products are sold in developed countries. Europe is the world's leading market for organic produce, with an estimated retail value of ECU 2 500 mil. in 1993. Germany holds a dominant position with 52 per cent of the EU organic sales. France, the United Kingdom and the Netherlands follow in order of market size, with 13, 11 and 8 per cent, respectively (Pakenham-Walsh 1994). Domestic supply does not keep up with demand for organic products in the European countries, as well as in the USA and Australia (Lampkin and Padel 1994, Larcombe 1991). Considerable amounts of organic products have to be imported from abroad, among others from developing countries, which have become important suppliers particularly of fruit, vegetables, tropical beverages and nuts. There is a continual search on the part of developed countries for new sources of organic produce, both nationally and worldwide.

The share of organic products is currently about 1 per cent of the food market in industrialized countries, with notable exceptions being Denmark, Austria, Germany and Sweden where a share of about 2 per cent is common (Hamm 1994). As a result, organic products can still be classified as a mainly niche market even though some exceptions have already appeared (see box 2). However, since the late 1980s and early 1990s, consumer demand for these products has been experiencing a strong and rapid growth, both in Europe and in North America. According to some estimates, their share in the total food market is expected to climb to as much as 5-10 per cent or more for some countries and products by the turn of the century (Pakenham-Walsh 1994, Hamm undated, Pfister 1995). An important factor in this process may be the commitment by some developed-country governments to make conscious efforts to switch their own agriculture sector partly to organic methods (UNCTAD 1995a). For example, Sweden has declared the intention to reach a 10 per cent share of organic agriculture by the year 2000. Organic farmers in Finland have launched an initiative towards the same goal. Iceland and Denmark have made a commitment to convert ultimately the entire agriculture to organic practices. To date, areas under organic production in Europe have reached over 1 million hectares. In the United States, a growth from 1 to 5 per cent of total agriculture is expected in connection with the coming into effect of the Organic Food Production Act 1990 (Geier 1995; *Ecology and Farming*, May 1995). Consumers could thus be presented with a greater number of organic products to choose from, as well as expanded retail outlets from which to obtain these products. Thus the demand for organic products from developing countries, such as coffee, tea, bananas or cotton, would increase as well.

Markets for organic products in developing countries are still in an early stage of development. Growth, however, can be expected as a result of increasing incomes and health and environmental consciousness in these countries. Typically, the market for organic foods starts with a demand for non-sprayed fruits and vegetables since consumers are first of all aware of the misuse of chemicals on these fresh products. As price is a major deterrent to increased domestic consumption of organic products in these countries[16], the ability to

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[16] However, a new worldwide survey conducted by Gallup has found that consumers in countries such as India, Republic of Korea, Chile and Mexico are also environmentally aware to the extent that they would be willing to accept

Box 2 - **Organic baby food in Germany - from a niche to the mainstream**

Baby food is an example of a sector where organic products have breached the frontier between a niche and a mainstream market building on the parents' concerns about their babies' health and on their eagerness to provide them with the best food available. In fact, more than 50 per cent of all the jarred baby food on the German market is organically produced and the whole sector is supposed to offer exclusively organic products within the coming 2-3 years.

This shift in favour of organic products is due, to a great extent, to consumer reaction to alarming news about the detection of pesticides residues in vegetables/fruit-based food for babies. For example, when the chemists' chain Schlecker stopped buying "expensive" baby food from Hipp and substituted it by a cheaper imported product, subsequent analyses detected an unacceptably high pesticides content in the latter.

The scandals provided a strong impetus to switch by major manufacturers towards organically produced baby food. The turnover of the German leader in the sector, Hipp, has risen considerably after the company started to implement its organic programme. Milupa introduced on the market an entirely organic assortment of baby food in jars.

Milupa uses organic banana paste imported from Latin America to produce the wet baby food in jars. When the company decided to go strictly organic in this business, an importer of organic products offered them organic banana paste from the Dominican Republic and Puerto Rico. Both projects had been set up some years ago by exporters of US origin and are situated in climates favourable to organic banana growing. Milupa also searched for new supplies in Costa Rica where there are high quality banana puree processors and also an already existing organic movement. Imports of organic banana paste were then started in cooperation with a Dutch foundation that had already worked in the area for close to 3 years, and with the assistance of the GTZ-Protrade (Deutsche Gesellschaft für Technische Zusammenarbeit).

An important component of these projects is the fact that value is added locally, since the processing of bananas into banana paste takes place in the developing country itself. Even though some initial obstacles had to be overcome in order to find processors experienced in making banana puree, filling it aseptically in bags or drums and capable of ensuring consistent organic quality, local production appears to be economically viable. This has become even more true in the light of the EU regulation on bananas which makes banana processing in the EU countries unprofitable.

The same factors are expected to have a major bearing on other countries as well. For instance, in China where most families have only one child, the concern for children's well-being could become a driving force of the demand for organic products (Hamm 1994).

Source: C. Thimm, Milupa, pers. comm., Geier 1995, Hamm 1994.

produce organic food crops at a lower cost would greatly facilitate their growth in mainstream markets.

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higher prices if this benefited the environment (Shams 1995). Even though there may well be a gap between the results of polls and actual purchasing behaviour, experience from Senegal, for example, concerning organic vegetables production carried out by a group of women, shows that their products are easily sold at premium prices even in a country with a generally low level of incomes (UNDP 1992).

B. Factors affecting consumer preferences and purchasing decisions

Over the last ten years, consumers' attitude towards organic products was evolving under the influence of a combination of different economic and non-economic factors. A major change was associated with an upsurge in the importance of non-economic considerations (factors relating to the phenomenon of "green consumerism") in the purchasing decision-making. However, even though public opinion polls indicate that a growing percentage of consumers favour environmentally conscious purchases, there may be a gap between consumers' intentions illustrated by the results of these polls, and their behaviour when it comes to making actual purchasing decisions. As a matter of fact, only a very limited group of "green hardliners" may be willing to buy products on purely environmental grounds, without taking into account economic elements, such as price, quality and availability of the products in question.

1. Green consumerism-related factors

The general trend towards environmentally more conscious patterns of consumption, with a subsequent effect on the patterns of production, manifests itself through a number of factors, each of which reflects a special component of this emerging change of consumer preferences. The following factors, classified in order of importance, are of a particular relevance for organic foods and clothing:

- **Health concerns**. After being exposed to alarming news about the presence of toxic, even carcinogenic substances detected in food and clothing, the consumer wants to have as absolute a certitude as possible that what he consumes or wears is safe for his health and particularly for the health of his children. Certified organic products provide a way out of these concerns, responding at the same time to the demand of those consumers who have a strong preference and interest in healthy diets and non-allergy-provoking clothing.

- **Environmental consciousness**. When confronted with a growing level of environmental contamination, people become more interested in the ways the products that they consume impact on the environment. Besides sensitivity to waste disposal problems, other locally felt issues, such as pollution generated by conventional agriculture, are at the top of consumer concern, which predisposes them to biasing their preferences in favour of environmentally sound production methods.

- **Preference for "authentic" products and lifestyles**. Products with a natural look and feel, and not containing artificial colouring and additives, have come into fashion in the 1990s. In this respect, organic foods and clothing can satisfy the particular segment of consumers who show this kind of preference. Eating organic foods is part of a certain lifestyle to which a growing group of young consumers wish to adhere.

- **Social fairness concerns**. Some consumers believe that rich countries should share responsibility with developing countries for the social as well as environmental situation in the latter countries. For this reason, they opt to buy products the purchase of which contributes to improving the living conditions of producers. Since a number of organic products, such as coffee, cocoa, tea or cotton, are also produced and traded in a socially fair manner (UNCTAD 1995a), such products appeal to this group of consumers.

In developed countries, most of these consumers are among (a) younger people with above average education and frequently, but not always, above average income, (b) people over 60 who are relatively well off and interested in a diet and lifestyle which will enhance their health and longevity (Pakenham-Walsh), and (c) people with small children. Though smaller, the market segment in developing countries which may be addressed by organic products similarly consists of wealthier and better educated people, living in the main cities.

2. Price

Consumers' willingness to pay for environmental, health, fashion or social attributes of organic products depends to a great extent on their economic situation. If the income of a household is limited, which is the situation of

the majority of developing countries, the price/nutritional-value ratio of foodstuffs plays the crucial role. With growing income, however, other, non-economic attributes of the product gain in importance. As a result, acceptable price premia may differ among countries depending on the level of incomes and size of the consumer segment interested in organic products. Although considerably higher prices, up to twice or more conventional price, can sometimes be obtained for organic products[17], markets in general can stand only a certain amount of premium before causing a backlash of significant resistance. The amount of an acceptable price premium is generally estimated at somewhere between 5 and 20 per cent of the conventional price[18] (Blake 1993, Wong 1993, for example). The proportion of consumers willing to buy organic products falls rather sharply after the premium reaches 5 to 15 per cent over their non-organic counterparts (Haest undated). Since actual market prices frequently exceed the level acceptable for mainstream consumers, retail prices are often seen as a deterrent to breaking out of niche segments of the market.

3. Quality

It is often affirmed that the food produced by industrialized agriculture lags far behind organics in nutritional and taste qualities (Haest undated, FFTC 1992, Tierra Viva undated, and others). Organic products are richer in nutrients (carbohydrates, proteins, vitamins and minerals, among others) and often claim to have a better taste and flavour. This is partly due to the uniformity of varieties cultivated in conventional agriculture. For example, to meet one person's minimum suggested daily intake of vitamin C, one needs to eat six "conventional" Golden Delicious apples (the hybrid with the biggest market share) as compared with one Ontario apple (a traditional, organic variety). A factor contributing to the superiority of organic products in this regard is the nature of agricultural practices used during their cultivation. As a result of a different type of fertilizing, organic foods have a higher concentration of nutrients (dry matter) and a lower water content, which also improves their shelf life. Since modern agriculture is often more geared to quantity than quality, the fast way of growing plants with the use of synthetic fertilizers does not allow plants to develop fully their taste and flavour (Simon Lévelt undated). On the other hand, the external quality (size, uniformity of appearance) of organic produce may not be sufficiently attractive for consumers who are accustomed to perfect-looking, unblemished conventional products.

4. Certification

Since consumers often choose to buy organic products and pay a premium on the grounds of positive health effects and other attributes, they legitimately expect to get in exchange a product of guaranteed organic origin. Likewise, organic producers, who have to bear higher production costs, want to be protected against false "organic" or "bio" claims.

As yet, there is no system that is recognized worldwide and which would provide a guarantee of products' organic quality. Some countries have adopted mandatory certification requirements with which all the products sold as organic have to comply. This is particularly the case of the European Union whose Council regulation 2092/91 sets standards for all plant products and their

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[17] For example, premia for organic wheat range up to 300 per cent in Germany, over 100 per cent in Britain and 40 per cent in Switzerland. Organic potatoes carry a premium of about 200 per cent in Denmark and Germany. In the United Kingdom, organic vegetables can fetch a price by 170 to 450 per cent higher than conventional products (Lampkin and Padel 1994). Organic cotton fibre sells at a price of between 150-200 per cent of that of conventional cotton in international markets (CBI 1995). Consumers pay up to 100 per cent more for organic coffee than for a comparable conventional product. Organic rice in Japan is sold for two to three times more than ordinary rice (FFTC 1992).

[18] Consumer willingness to pay may however vary also according to different product categories which may command different retail price elasticities. For example, the customer may be reluctant to pay even 5 per cent more for an organic cotton T-shirt, but for a well-designed jacket or sweater may pay as much as 200 per cent more (Grose 1995).

processing (EC 1991, Schmidt and Haccius 1993). Work is under way also on a similar set of standards relating to animal products, the outcome of which is expected by summer 1996 (M. Haccius, IFOAM, pers. comm.). The regulation also deals with the issue of the third countries' access to the EU market. Third countries wishing to export their organic products to the EU market have to apply to the EU Commission, with a view to having its certification system statutorily recognized as equivalent to that of the EU. Since this is a rather time-consuming procedure, no country has to date received a full recognition of this kind on a permanent basis. However, several countries (Argentina, Australia, Hungary, Israel, Switzerland, United States) have been included in the preliminary list (pending the completion of administrative procedures), which means that their products are admitted to the EU market on the basis of their "country-of-origin" certificate. If the producer is from a country which is not on the provisional list, a certification of the product by an EU-accredited body is required for imports on a case-by-case basis. Since developing country inspection agencies, with the exception of Argentina, are not among those accredited by the EU, developing country exporters generally have to resort to the services of developed country organizations, which has a considerable adverse impact on the final costs of their products. Similarly, in the United States, the market access for organic products will be regulated by the US Organic Food Production Act 1990, which is expected to come into force in 1996, for both plants and animal products. Regarding imports from third countries, it will be left to the discretion of the United States Secretary of Agriculture to determine whether the products have been produced under an organic certification programme which is equivalent to US standards. Some developing countries, such as Argentina, Brazil, China, Egypt, have also established organic product labels (S. Pedini, AAO, Brazil, pers. comm.; J.C. Batista, IASCAV, Argentina, pers. comm.; Xiao and Ding 1995; OFDC-NEPA 1995, Al-Araby 1995).

In case there is no regulatory norm in the country concerning organic production standards, or if the existing norm does not cover the whole range of issues related to organic production, the initiative is taken by the private sector and consumers have to pick their way among a number of voluntary private organic labels. The serious among them aim at providing a guarantee to consumers of the organic provenance of the product. A number of these schemes adhere to the standards set by the International Federation of Organic Agriculture Movements (IFOAM), which often serve as a basis for both mandatory and voluntary (Codex Alimentarius) organic standards schemes (IFOAM 1994, FAO and WHO 1993, UNCTAD 1995). Known brand names (such as Max Havelaar, for example) may also help to gain consumers´ confidence.

5. Availability

Consumers frequently do not buy organic products if they are not available in normal retail outlets and if disproportionate time and travel are required to get them. Outlet availability may therefore act as an impediment to the growth in sales.

Three main types of retail outlets still coexist in developed country organic trade. The first one, from a historical point of view, includes direct sales from producer to consumer in the form of farm-gate sales, producer-consumer cooperatives, organic markets and direct mailing. In the 1970s and 1980s, a second type, consisting of specialist organic retailers (such as health food shops) emerged in response to a growing demand for organic products. Finally, supermarkets have taken over a part of organic products business in a number of developed countries during the second half of the 1980s and in the 1990s. Although percentage shares of these three types of marketing channels in total organic trade retail sales vary from country to country[19], consumer

[19] Supermarkets are probably the most important in Great Britain where they are often the only retailers offering organic products lines, and in Denmark where between 50 and 70 per cent of organic foods is estimated to be sold by supermarkets. In the USA and continental Europe, the role of supermarkets is more limited and direct sales (cooperatives in Germanic countries, organic markets and farm-gate sales in France, for example) together with specialized shops (German Naturkostladen, Dutch Reform Houses,

preference for easily available products has paved the way for an increased involvement of supermarkets in the organic retail trade. Apart from bringing the product within convenient reach of consumers, this trend also contributes to cost savings resulting from larger-scale operations, and, consequently, to possible lower prices of organic products.

Data on marketing channels selling organic produce in developing countries are very scarce. It can, however, be expected that they will follow a similar development pattern as in the industrialized countries. Producers will probably start from local, farm-gate sales (Hussain 1995), possibly through a producer association or cooperative set up for this particular purpose. As demand and production increase, organic markets may emerge in cities[20] and link up with regular retail shops or supermarkets (D. Mones Cazón, Fundación Alimentos Ecológicos Argentinos, pers. comm.). In bigger cities, organic products could well be sold in supermarkets so long as a stable and reliable supply can be guaranteed (Al-Araby 1995).

Box 3 - **Marketing channels for organic products in the Republic of Korea's domestic market**

Sales of organic products in the Korean domestic market are still limited, accounting for less than 1 per cent of the total trade in farm products. These are commercialized in two principal ways, namely through direct marketing from producers to consumers, and through department stores.

Direct distribution is coordinated by the Han Sallim Consumers' cooperative union, the Correct Agriculture cooperative union and the Korean Organic Farmers Association's marketing arm. Moreover, ten small-scale direct marketing schemes operate in the country. Total sales through department stores are estimated at around USD 120 million a year and are steadily growing at the rate of 30-40 per cent a year. Exports are not envisaged at this stage because of problems such as keeping the products fresh across the producer-consumer chain.

Source: based on "Korea: country report", *Ecology and Farming*, No. 10, IFOAM, September 1995

IV. MAJOR ORGANIC PRODUCTS SUPPLIED BY DEVELOPING COUNTRIES

Any attempt to provide an overview of the developing country organic production is hampered by the lack of relevant and comprehensive statistical data. Only partial information concerning exports is available through certification bodies assigned to inspect the products which are exported, or through NGOs and producer associations involved in individual organic projects. Importers are another potential source of data on this issue. As regards domestic sales, information is even more rudimentary, if not completely unavailable. For this reason, the following review of organic production in developing countries can only provide a more or less general picture of the supply potential in these countries.

French "magasins diététiques", etc.) are of a greater importance. In Japan, an important place in the distribution of organic foods is held by a subscription system (a form of direct sales) called *teikei* where both producers and consumers provide labour and capital. Delivery stations are usually set from which groups of consumers, each consisting of several families, collect the produce.

[20] For example, the Associação de Agricultura Orgânica (AAO) in São Paulo, Brazil, operates three "Free Organic Farmers Markets", set up as a result of an agreement with the State and municipal authorities. Farmers, whose products are certified by the AAO, participate individually or through their associations (Pedini undated).

An overwhelming majority of existing organic product projects focus on plant products, with only a minor part being engaged in animal husbandry. With regard to developing country organic exports, tropical beverages, fruits and vegetables, and fibres are among the major items[21]. By contrast, the composition of products consumed domestically is more balanced, with an important share being accounted for by fresh fruits and vegetables, cereals, including rice, and animal products. Table 2 gives an illustrative, but by no means exhaustive list of principal organic products originating in developing countries. Some of these products are dealt with in more detail below.

Table 2 - **Organic products produced in developing countries**

Country	Product(s)
Algeria	dates
Argentina	soya, pears, apples, olive oil, cereals, garlic, maize, sunflower, spices, raspberries, cotton, raisins, dried plums, onion, citruses, yerba maté, vegetables, flax, meat, milk, honey, cheese, cotton textiles
Belize	cocoa
Bolivia	grains, Brazil nuts, cocoa, quinoa
Brazil	coffee, tea, herbs, cashew nuts, quinoa, fruits, vegetables, sugar, seasonings, candies, cotton
Burkina Faso	sesame seed
China	honey, sesame seeds, pumpkin seeds, tea, rice, apples
Colombia	coffee, Brazil nuts
Costa Rica	coffee, bananas, banana paste, rice, vegetables, sugar
Dominican Republic	bananas, banana paste, coffee, cocoa, coconuts
Egypt	herbs, spices, fruits, vegetables, cotton
Gambia	sesame seed
Guatemala	bananas, coffee, cashew nuts
India	tea, cotton, cotton yarn, spices
Indonesia	herbs, vegetables, coffee
Madagascar	coconut oil, palm oil, vanilla powder
Mauritius	sugar cane
Mexico	sesame seeds, pumpkin seeds, coffee, honey, bananas, apples, avocados, vegetables, potatoes, cereals, medicinal plants, cardamon, cocoa
Morocco	dates, lemons, tomatoes, vegetables
Nicaragua	coffee, cotton, corn, beans
Papua-New Guinea	coffee, tea

[21] Since organic production is by nature fairly diversified, the cultivation of the principal export crop is complemented by other minor, often food crops consumed by the farmers themselves, sold in the domestic market or exported as well.

Paraguay	sugar cane, sesame seed, peanuts, cotton, soya
Peru	coffee, cotton
Philippines	mango, bananas
Puerto Rico	banana paste
El Salvador	coffee
Sri Lanka	tea, cashew nuts, ginger, pineapple, sesame seeds, spices
Tanzania, United Rep.	cotton, tea
Tunisia	dates, tomatoes, vegetables
Turkey	currants, figs, apricots, plums, raisins, sultanas, dried fruit, almonds, hazelnuts, walnuts, seeds, lentils, chickpeas, honey, cotton, milk
Uganda	cotton, oil seeds
Zambia	honey

Source: UNCTAD Secretariat

A. Organic coffee

Coffee is currently the most important organic product exported by developing countries. Organic coffee production totals some 25 thousands tons a year (1991/1992), which is around 0.5 per cent of world coffee exports (J.Dardón, Asociación Mexicana de Agricultores Ecológicos, pers. comm.; UNCTAD 1993b). There are around 40 organic coffee projects under way which hold some form of certification. Mexico is the world's largest exporter (20,5 per cent of world exports in 1991/92), while other Latin American producers (Costa Rica, Guatemala, Dominican Republic, Haiti, Peru, Nicaragua, Brazil, Colombia) as a whole account for about 60 per cent of world organic coffee exports. The remaining twenty per cent of projects are located in Indonesia, Papua-New Guinea, India, Hawaii, Ethiopia and Madagascar (Wong 1993, Equal Exchange undated, Boyce, Fernández, Fürst, Segura Bonilla 1994, and others).

Organic coffee still accounts for only a minor part of the market, ranging from 0.3 per cent in France and Italy to 0.1 and 0.2 per cent in Germany and the USA, respectively. In absolute terms, the major markets are the United States (66 per cent of worldwide sales), Germany (18 per cent), the Netherlands (5 per cent) and France (4 per cent). Despite the present low market shares, the prospects for growth in organic coffee markets seem to be promising in view of growth in demand and market shares since the mid-eighties (Wong 1993, Boyce, Fernández, Fürst, Segura Bonilla 1994, Pollock 1994). Concern, however, is sometimes expressed about the risk of saturation if large numbers of farmers convert to organic production (May forthcoming).

A number of organic coffee projects have been associated with fair trade organizations[22] or socially and environmentally conscious importers who provide the producers assistance in capacity building and in complying with the certification requirements of consuming countries, and who secure the products

[22] The various alternative coffee exporters have agreed on fair trade conditions, including, among others, the payment to farmers of a "fair" price, which can be either a world market price, or a so-called minimum price in case the world price falls below the minimum level. The minimum price is based on a calculation of (a) the average cost of production and (b) payments needed to maintain an adequate living standard of coffee producers in different countries. Moreover, it includes an amount for amortization and investment in production improvements. From 1989 to 1993, the world market price for conventional coffee was as much as 60 per cent below the above-calculated minimum price.

a niche in distribution outlets. Starting mainly from the second half of the 1980s, the fair trade movement began to put more emphasis, in addition to social issues, on environmental considerations in coffee production. This trend resulted in the development of coffee brands which combine the criteria of environmental and social friendliness[23]. For the time being, the fair trade coffee (including both purely fair trade and fair+organic coffee) accounts for around 5 to 6 per cent of the market in Switzerland, 3 per cent in Germany and 4.5 per cent in the Netherlands (Geier 1995, UNCTAD 1995a).

Organic projects with fair trade elements are essentially targeted at small farmers[24] and place a particular emphasis on the improvement of their living conditions (see table 3). This is essentially made possible by increased farmers' incomes stemming from: (a) a "fair" price which is, to the greatest extent possible, passed on to producers through the direct marketing of their products, thus avoiding the involvement of intermediaries; and (b) a fixed extra charge for certified organic products (Nickoleit 1995, UNCTAD 1995a). The total premium is reported to range from 30 to 100 per cent of the world price (J. Pierrot, Simon Lévelt, pers. comm.; Bolvenkel, Buckley, Eijgendaal 1993; Equal Exchange undated), the price paid by the consumer being from 20 to 150 per cent higher than the price of conventional coffee (Wong 1993). It is, however, also true that costs of organic certification, reportedly coming close to as much as one third of the premium (Zamora 1995), may partly offset the positive effects on farmers incomes.

The Netherlands-based Max Havelaar Foundation, operating also in Belgium and Switzerland, played a pioneer role in this respect and its seal of approval is probably the best-known among consumers. The success of the TransFair's seal in Germany, adopted by more than 20 per cent of roasters, has led to TransFair brands being launched in Austria, Luxembourg, and Japan. Among major importers in Europe are GEPA, Lebensbaum (Mexican and Brazilian coffee) and Wertform (Papua-New Guinea) in Germany, and Simon Lévelt (Mexico, Brazil) in the Netherlands. In Great Britain, a private-label fair trade coffee, Cafédirect, was introduced by a coalition of British fair trade associations. The largest alternative trade coffee company in the United States is Equal Exchange, which is involved in a number of projects in Latin America (see table 3). Organic coffee is commercialized either through health food and Third World shops (GEPA's Kaffee Organica, for example), or through supermarket chains (Coop and Migros in Switzerland).

B. Other tropical beverages

(a) Tea

As a crop, tea is currently confronted with a stagnating demand which, moreover, has been affected by the recent rejections of some consignments by European importers because of alleged excessive pesticide residues. This situation has revived the interest in environmentally safe organic tea which would not encounter the same type of problem on the international market. Calls have been made for improving environmental attributes relating to the production of tea, *inter alia* through the promotion of organically grown tea. A strengthened image of tea as a healthy drink could then help boost sales and recuperate some market share while providing at the same time better prices to producers (Stainer 1995, Chandran 1995).

Although comprehensive data are currently unavailable, even organic tea production could face constraints stemming from insufficient demand. It is reported that the supply of organically grown teas has already exceeded the present level of demand, even though the situation may vary across different tea-producing regions. Oversupply seems to be particularly high in South India and Tanzania where some big units converted to organic production. There still

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[23] For example, it is estimated that 30 per cent of the price premium is attributable to environmental and 70 per cent to social qualities of the product in the case of Max Havelaar coffee (UNCTAD 1995a).

[24] However, the oldest and probably the best-known organic coffee farm in the world, Finca Irlanda in Mexico, is a large scale enterprise, covering an area of 270 ha of cultivated land (UNDP 1992).

appears to be scope for expansion in Sri Lanka where international demand matches supply. Likewise, the demand for organic Darjeeling tea, which is considered to be the best quality tea available, is in equilibrium with supply for the time being (M. Kunz, TransFair Int., pers. comm.). Organic tea is also produced in Papua-New Guinea, certified by the NASAA (The National Association for Sustainable Agriculture, Australia, Ltd.) and exported to the Australian market (S. Goldfinch, NASAA, pers. comm.).

Apart from weak demand, organic tea production is constrained by other factors, such as high certification costs, low quality resulting from obsolete technologies, scarcity of labour in some areas with alternative gainful opportunities, and lack of adequate and timely market information (M.C. Muthanna, The Bombay Burmah Trading Corporation; R. Munz, Oasis Teehandel, pers. comm.).

Among the companies involved in organic tea production, processing and marketing and located in developing countries, the Bombay Burmah Trading Corporation in India (see box 4) and the Stassen Natural Foods Ltd. in Sri Lanka are particularly active. The latter started organic production in 1987, cultivating as of 1995 250 ha of land, with an annual production of around 150 tons. Tea certification is provided by the German agency Naturland and the tea is exported to Germany and other European countries, as well to Australia and Japan (N.M. Abdul Gaffar, Stassen Natural Foods, pers. comm.). Social aspects hold a prominent place in a number of these projects.

Organic tea is imported mostly along with conventional tea (e.g. by OASIS Teehandel GmbH, Germany) or as a part of a broader range of organic imports (Simon Lévelt, the Netherlands, which is also involved in organic coffee business). Different varieties of organic tea are available on the market, including tea without caffeine, with less tannin and tea with organic herbs. A fairly-traded organic tea is offered by the Max Havelaar Foundation Switzerland under the label of Tea Amigo in the supermarket chains of Migros and Coop and in the network of third world shops Magasins du Monde.

Table 3 - **Equal Exchange organic coffee partners in developing countries**

Country	Local partner	Number of farmers involved	Starting date	Certification agency	Project benefits for farmers
Nicaragua	Prodecoop S.A. (Promotora de Desarrollo Cooperativo de las Segovia)	69 cooperatives with 2,420 families	1993	Organic Crop Improvement Association (OCIA) (USA)	production-related benefits (farm improvements, paying off bank debt, training in administration, legal matters and organizational issues) social benefits (schools, health care centres)
Peru	CECOOAC NOR (Central de Cooperativas Agrarias Cafetaleras Nor Oriente Ltda)	12 cooperatives with 4,300 farmers	1991	OCIA	production-related benefits (a dry-processing facility and a warehouse, training in agricultural practices and management) social benefits (school, alternative to coca growing)
Mexico	UCIRI (Union de Comunidades Indígenas de la Región del Istmo)	cooperative of indigenous peasant farmers with 5,000 families	1982	Naturland (Germany)	production-related benefits (hardware and farm-supply store, coffee processing facilities, agricultural school providing training in organic farming, training in accounting) social benefits (health care services, cooperative corn mills, the only public bus line and the only secondary school in the region)
Colombia	APCO (Asociación Colombiana de Productores de Café Orgánico)	cooperative with 60 farms	1992	OCIA	production-related benefits (agricultural extension and training programmes, alternative energy production, alternative marketing) social benefits (avoidance of health risks resulting from the use of chemical inputs)

Source: compiled on the basis of Equal Exchange data.

Box 4 - Organic estate tea in India

The Singampatti Group of Estates, which is a division of the Bombay Burmah Trading Corporation, Ltd., started the conversion towards organic practices in 1988 with 40 ha and expanded progressively towards more than 300 ha in 1990. Its product is marketed in Western Europe, particularly in the United Kingdom, in Japan and India.

The prices fetched by organic tea are almost 80 per cent higher than for the conventional tea and yields are reported to be higher by 11 per cent. However, along with these positive economic features, the project experienced a substantial rise in total costs which climbed to more than double the conventional total costs. Furthermore, a great part of organic tea was sold in the conventional market since the demand for organic tea was limited. The company nevertheless expected that the project's economics would improve after the conversion was completed.

The project brought about higher incomes, as well as health benefits in terms of a significant decrease in lung diseases and a 100 per cent survival rate of young children. Positive environmental impacts included lower consumption of energy resulting from the replacement of fertilizers and agrochemicals by human labour and the use of solar energy to run the tea factory. Organic agriculture practices improved the nutrient status of the soil and the ecological stability of the plantation. A marked renewal of bird, reptile and insect life in the plantations was observed, owing to a sensitive approach towards the conservation of biodiversity (the estate is situated in a tiger reserve).

Source: based on UNDP 1992

(b) Cocoa

Major producers of organic cocoa are Bolivia, Mexico, Belize and the Dominican Republic. In Bolivia, which started to export organic cocoa in 1987, the organic product already accounts for 77 per cent of total cocoa exports and nearly 4 per cent of the entire country's non-traditional exports. The organic agriculture umbrella organization in this country, the AOPEC (Asociación de Organizaciones de Productores Ecológicos), founded in 1991, associates 7 member organizations representing around 3,500 rural farmers families. All exports are carried out without intermediaries, and sold in the fair trade market. Organic cocoa from Bolivia serves also as a raw material for further processing of a fair trade chocolate (see box 5). Alternative trade allows a greater part of final benefits to accrue to primary producers. The AOPEC has the necessary infrastructure and a well-trained staff and is extending its activities into training, inspection and certification, with a view to cutting certification costs which are often prohibitively high for small farmers (Veliz 1995), the same as in the case of coffee.

C. Organic cotton[25]

Despite a considerable growth in production in the early 1990s, organic cotton still remains a niche product in international markets. The total amount of the certified product have so far been rather small - between 6,000 and 8,000 tons in 1993. A 50 per cent increase was expected for 1994 to 9,000-12,000 tons, followed by a further rise in 1995. Even in this case, however, organic cotton

[25] Following the example of the cotton industry, organic principles start to be applied in the production of other fibres such as wool, linen and jute. For example, products from organic wool (from New Zealand, but also Germany) have already appeared on the market (Grose 1995; WWF Panda catalogue, autumn 1995, UNCTAD 1995b).

Box 5 - Fair trade chocolate

The "Mascao" chocolate is marketed by Oxfam World shops in the Netherlands, the United Kingdom, Austria, Germany and Italy. The objective of the project is to ensure that cocoa production be beneficial for small farmers and help them improve their standard of living. Cocoa and sugar cooperatives receive a fair price plus organic premium. For example, in 1990 when the world cocoa bean price was USD 1,300 per ton, Oxfam paid USD 3,100 for beans of organic quality, out of which USD 1,600 were directly passed on to producers. Sugar producers participating in the project receive double the price offered by the international cane sugar centres.

The chocolate is prepared from organic cocoa grown by a Bolivian cooperative, "El Ceibo", and from "fair" sugar "Mascobado" produced in the Philippines. "El Ceibo" is an association of cooperatives, sustaining 5,000 people and producing 1,500 tons of excellent-quality cocoa on 8,000 ha of land. Half of the cocoa produced meets organic standards. "Mascobado" sugar comes from the Island of Negros in the Philippines. Around one hundred peasants deliver their production to the local refinery, forty people work in the refinery and 60 more are employed in bagging the sugar. Nearly 400 tons of sugar are produced annually, half of which is sold to European fair trade organizations and half to a Japanese organization.

Source: based on ICDA (International Coalition for Development Action) 1995

would only account for 0.1 per cent of total production (Myers 1995). Market prospects seem nevertheless promising since a shortage of organic cotton fibre, yarn and fabric is presently reported and the needs of companies involved in organic textiles are not fully met (Myers 1994). For this reason, a growing number of organic cotton projects have recently been initiated aimed at bridging the current gap in the market between demand and supply.

Apart from the United States, which is the most important producer worldwide accounting for roughly 75 per cent of production, as well as Australia and Greece, organic cotton is also grown in developing countries, namely in Argentina, Egypt, India, Paraguay, Peru, and Turkey (see Table 4). Recent projects are under way in Uganda, United Republic of Tanzania and Nicaragua, and are being launched in India (Maharashtra) and Senegal. A small project is also reported to exist in Brazil (May forthcoming) concerning the production of arboreal mocó cotton[26]. Conditions look favourable for conversion to the production of organic cotton in several more countries including, Mali, Burkina Faso, Mozambique, Zambia, Zimbabwe, El Salvador and Ecuador.

The price of organic cotton fibre in international markets is related to the price of the conventional product. The figure is 50-200 per cent higher than for conventional cotton fibre (Myers 1995, CBI News Bulletin, September 1995). Price premia accruing to the farmers are reported to range from 10 to 30 per cent of the price. Certification is an essential step to gain entry in the organic market. IFOAM standards for cotton cultivation or the EU Regulation 2092/91, are generally the basis for inspecting the fibre. A one-year transition period is required before the cotton can be labelled as organic. Meanwhile, it is described as "transitional" (California) or "organic B" (Australia), which allows the producer to recuperate a part of the premium associated with the organic product. Several agencies currently exist which certify organic cotton

[26] Through an alternative agriculture organization ESPLAR, Greenpeace of Brazil has brokered the entry of the organic mocó cotton into the domestic market, using it for the production of its promotional T-shirts. This alternative market channel secured the producers a price premium of 30 per cent in 1993 and 10 per cent in 1995 following the general increase in cotton prices. Fibre was bought by the company Filobel in Jundiai, which also assumed transport costs and VAT. However, the volume shipped (10 tons over the initial two-year trial period) was only sufficient to supply the limited demand by Greenpeace.

production, but the Dutch SKAL is so far the only one which has developed criteria for textile processing. Some companies use their own standards for organic textiles manufacturing (see for example box 6).

Box 6 - Organic cotton processing in Denmark

A Danish company, Novotex SA, has been increasingly turning towards the use of organic cotton in their garment production. When the company started in 1983, 1 per cent of their cotton was organic whereas it is now 10 per cent and the figure is still growing. Cotton is imported from Turkey, Peru, and Greece and certified against the EU standards.

As regards processing, cotton is spun on advanced computerized machines that require a tight control of an otherwise dusty atmosphere. Only water soluble dyes are used and chloride for bleaching is substituted by hydrogen peroxide. The dyeing process is carried out in fully closed high pressure jet machines with reduced water consumption and no air pollution. In the drying process, mechanical finishing is carried out, eliminating the use of chemicals, such as formaldehyde, and resulting in an improved material quality. The production of cotton garments is carried out with dust extraction at the cutting and sewing machines. All waste water is purified in a neighbouring plant.

Environment-friendly garment production is reportedly also bringing about economic benefits. Water consumption is reduced, with all of the cooling water being recycled. The dyeing processes now use only 50 per cent of the original water consumption, the new cleaning processes use only one third of the original cleaning water, and the drying machines recycle 75 per cent of the hot air used. The effluent water quality is far better than the limits set by the water authority.

Source: based on UNEP 1993

Since cotton is among the most chemicals-dependent crops, concerns have been voiced about the economic viability of organic production when synthetic fertilizers and pesticides are completely dropped. Substantially lower yields might then not be compensated for by higher prices and possible cost savings. Available evidence shows that yields actually fall in the short run, reportedly by 36 per cent in Argentina and India and by 38 per cent in Turkey (Myers 1995, UNDP 1992, de Vries 1995). By contrast, no drop in yields occurred in Uganda where the project started in a rather pristine area (B. van Elzakker, Agro-Eco, pers. comm.). As most organic projects have only a recent history, there is as yet not sufficient information about the longer-term prospects. It seems, however, that as soon as soil nutrients are replenished, yields may return close to their pre-conversion levels. For example, in the Turkish Kahramanmaras region, yields first dropped from 3,160 to 1,500 kg/ha, following which they recovered to 2,750 kg/ha in the second phase of the project (de Vries 1995). In the Maikaal project in India, yields have reached their former conventional levels. In any case, it seems that organic cotton production can more easily be started from smallholder situations because of a usually lower incidence of pests and an better availability of organic fertilizers, as compared with HEIA situations.

Table 4 - **Overview of existing organic cotton projects**

Country	Starting date	Area in ha	Output (tons of fibre)	Yield (kg/ha)	Developed country partner	Certification agency
Argentina (figures for 1994/95)	1991	400*	120	300*		Argencert (Arg.)
Australia 1993	1991	700	479	685		NASAA (Austr.)
Egypt 1994	1991	607	600*	986*		Demeter (Germ.)
Greece 1994/95	1992	470	333*	700		Dios (Greece)
India Gujarat 1994/95 Madhya Pradesh (Maikaal) 1994/95 Maharashtra 1995	 1992 1995	 687 540 n/a	 25* 220 100	 370 375* 200	 Bo Weevil (Neth.) Remei AG (Switz.) GTZ-Protrade (Ger.)	SKAL (Neth.) IMO (Switz.)
Turkey 1993	1989	25	15	627	Bo Weevil (Neth.)	SKAL
Paraguay	1991	details n/a				SKAL
Peru 1993			450			OCIA (US)
United States 1993	1989	5,829	5,000*			OCIA,FVO,CCOF (all US)
Nicaragua 1994/95	1994/95	50	8*	500	GTZ-Protrade, Prolana (Ger.)	local certification
Tanzania, United Republic 1994/95		162	10*	200	GTZ-Protrade	
Uganda 1994/95	1994	50-100	21		Sida (Sweden)	KRAV (Sweden)

Source: Myers 1995, Caldas 1995, de Vries 1995, van Elzakker 1994, UNDP 1992, Casale 1993
Note: Figures marked with * are estimates.

The actual impact of organic conversion on cotton farmers' income is difficult to quantify because experience has been limited to a few seasons at most. Farmers seem to have been compensated for lower yields through price premia. In addition, they have often enjoyed a guaranteed market, with their production being purchased by the developed country partner company. Risks of pesticides use have been eliminated, resulting in a positive impact on farmers' health. A number of projects comprise fair trade elements. For example, a social fund was established in projects undertaken by the Swiss Remei AG, created out of a part of the difference between the buying price to farmers and the selling price on the international market. The fund is used to recoup start-up costs, fund organic certification processes and support small community development projects (Caldas 1995).

D. Organic fruits and vegetables

Unlike most of the above products (with the partial exception of cotton), organic fruits and vegetables may enter into a direct competition with the products grown in potential importing countries themselves. For this reason, some projects are geared to cater exclusively or mainly to domestic market needs. Others take advantage of different growing seasons, thereby gaining a market niche in developed countries during the seasons of the year when locally-grown organic products are not available. Finally, some of these products consist of subtropical or tropical fruits or herbs which do not find a direct competitor in importing countries. Organic bananas[27] seem to be particularly promising in this respect, but also dried fruits and nuts find a market in developed countries. An example of a farm combining the above approaches is given in box 7.

The evidence accumulated from individual projects on organic fruits and vegetables (UNDP 1992) suggests that yields are generally lower than in conventional production, the reduction ranging from 10 to 25 per cent among the projects reviewed. Production costs are usually higher, which may be due to the specific requirements of this type of crop. Also certification and distribution costs may be quite high, in particular for small projects. However, to the extent that the price of the primary material accounts for only a small part of the final price of the product, it has been generally been possible to absorb increases in farmers' incomes without undue effects on prices[28].

V. WAYS AND MEANS OF INCREASING PRODUCTION AND TRADE IN ORGANIC PRODUCTS FROM DEVELOPING COUNTRIES

Organic farming has already carved out a place in the developed country agricultural systems and has also made a successful start in a number of developing countries. As a result, both supply and demand for organic products have been constantly growing, albeit from a low base. Despite this undoubtedly positive trend, a broader proliferation of organic practices is still hampered by constraints relating essentially to two major groups of problems: (a) lack of competitiveness and (b) lack of information about production methods, markets and products. The two issues are closely interlinked. As products become more competitive, more interest is generated in obtaining information related to their production and sales. Improved access to information can in turn foster competitiveness of these products through a wider dissemination of appropriate

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[27] For example, in Costa Rica, a small plantation was set up by the company Ecos del Agro, with a banana variety resistant to nematodes and leaf diseases. Other crops are grown in between the rows of banana plants. Since in vitro multiplied material was used in this plantation, the price is about double the conventional one. Certification is done by the Brasilian Instituto Biodinamico. Given the small scale of operations, certification and separate distribution are relatively expensive. Moreover, a quota needs to be bought in order to accede to the EU market.

[28] Production costs of organic brown cane sugar are USD 0.38 in the organic sugar cane Planeta Verde project in Brazil, which represents 5-6 per cent of the USD 5-6 price paid by the final consumer.

Box 7 - Sekem farm in Egypt

The Sekem farm, situated in the desert area near the southern point of the Nile delta, not far from Cairo, was established in 1977. The total farm area is 55 ha, of which about 30 ha are under cultivation. Additional farms which supply products on a contract basis to the main farm cover about 500 ha and this area is steadily expanding. The products are certified in accordance with the Demeter standards for biodynamic agriculture*.

The main crops grown at the farm can be divided into three categories: trees, herbs and spices, and vegetables. Tree crops include guava and pomegranate for the local market. A wide range of vegetables are grown for the Egyptian home market as well as for off-season fresh vegetables consumption in Western Europe. Spices and herbs are designed for both domestic consumption and exports. The farm also includes dairy, beef, sheep, chickens, and pigeons for production purposes, bees for pollination of herbs and fruits, and camels for draft power.

The milk is pasteurized or processed into cheese. A wide range of off-season vegetables are not processed, but only graded and packed before being exported. The fruits for the domestic market do not undergo any processing, either. Dried herbs and vegetables are sold to companies specializing in organic herbs and vegetables in the Netherlands and Germany. There is a close cooperation with buyers abroad. Originally, the bulk of the production was marketed in Egypt, but because of the success of the products on the West European market, exports have risen to 40 per cent of the total turnover instead of the initially planned 10-20 per cent.

About 200 people are employed on the Sekem farm itself. The farm is connected to a plant producing products for veterinary and human medicine. In this plant another 500 people are employed. The farm closely collaborates with other farms in the surroundings in the organic production of herbs, cotton and vegetables.

The project organizes seminars for all workers in the subject of the biodynamic agriculture. A lot of activities are developed for the people working on the farm. Houses, a kindergarten and rooms for social meetings are provided to the farm workers.

Source: based on UNDP 1992

* Biodynamic agriculture is sometimes labelled as "organic plus" farming since it moreover puts emphasis on spiritual and "natural force" elements.

practices, better marketing and increased consumers' interest, thus creating a virtuous circle of growing competitiveness and information.

The development of organic farming takes place within a broader context characterized by an overall shift in developed and developing countries towards more environmentally sustainable agricultural practices. This trend is translated into a growing commitment by governments to promote sustainable production methods. Many developing countries have made substantial progress in introducing Integrated Pest Management. Some developed countries, particularly in Europe (such as Switzerland and Sweden), envisage adopting the norms of Integrated Production as a mandatory production method. Policies in this direction also represent a step forward towards organic farming. On the other hand, the specific nature of the organic market, which stems mainly from the fact that these products can be distinguished from others by means of certification, makes it necessary to adopt special measures to encourage their production and consumption.

The experience accumulated by existing organic projects in developing countries indicates that a crucial prerequisite for success is partnership and cooperation by all actors that are directly involved in organic production and trade or who may have a bearing on their outcome. These include both public and

private sector representatives ranging from developing country governments, donors, producers, importers, wholesalers and retailers to consumers. NGOs play an important role in this particular area. Cooperation is essential at national and international levels. National partnerships could be built around cooperation among producers themselves, and between the government and the private sector. At the international scale, partnerships include participation of governments and international organizations, as well as actors from the private sector of producing and consuming countries. An example of a successful partnership based on a private sector initiative is given in box 8.

A. Measures to increase competitiveness

Despite their undeniable environmental advantages, organic products often do not withstand the competition presented by conventionally produced substitutes. First, as discussed in section II.C, costs per unit of production are frequently higher in organic farming, at least in the short run. The transition to organic practices may be particularly burdensome, due to the non-availability of premia during this period, lower yields resulting from the fact that nutrients have not yet been replenished, investment start-up costs, as well as insufficient familiarity with new production methods. Second, organic products need to be certified, which entails additional costs for producers. Third, higher costs arise along the production-consumption chain as a result of lower quantities of products produced and traded, which inhibits taking advantage of economies of scale. This problem is particularly present in transport and handling where organic products have to be kept separate from conventional produce; in processing where low quantities of raw material do not allow for a cost-efficient use of equipment; and in marketing where the shift towards mainstream retailing is also hampered by an insufficient and irregular supply of some organic products. Fourth, lagging quality (reported in the case of tea, for example) or lack of consumer appeal (unattractive appearance or presentation for foodstuffs, or unappealing design in the case of clothing) may also have an adverse impact on the demand for organic products. A number of policies and measures may be instrumental in alleviating these competitiveness-related constraints, as suggested below.

1. Internalization of environmental externalities

Although organic products generally benefit in terms of price premia from the recognition by consumers of their environmental attributes in the form of price premia (internalization of environmental benefits), their competitiveness is still hampered by the absence of an internalization of environmental costs, i.e. the fact that environment-unfriendly practices are not only not penalized, but sometimes even encouraged. If these considerations were factored into the costs of farm production and processing, the overall competitiveness of organic production systems would improve considerably[29].

Even though full internalization of environmental costs is not likely to occur in the near future, some steps towards this objective may be taken. As yet, agricultural policies in many developing countries are designed so as to encourage HEIA practices. Farmers often receive subsidies on pesticides and fertilizers although some of these have already been reduced or eliminated either voluntarily or under structural adjustment policies. Credit systems may also be biased against environmentally more friendly methods thereby forcing producers to stick to conventional production patterns[30]. The first step to remedy this situation would be to eliminate subsidies on environmentally harmful inputs. This could be followed by penalizing the use of harmful inputs, for

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[29] For example, a case study on the United States (Faeth, Repetto, Kroll, Dai and Helmers, 1991) concludes that if environmental costs were internalized in conventional agriculture, the USD 80-per-acre profit that is calculated (for wheat) using traditional accounting methods would in fact become a USD 26-per-acre loss.

[30] In India, for example, farmers are only granted a credit if they spend 50 per cent of it on pesticides and other chemical inputs (Hohmann 1994).

Box 8 - Cooperative chain from producer to consumer - the case of Remei AG's Maikaal project

Remei AG is a Swiss cotton yarn trading company that has endorsed the principles of fair organic trade and puts into practice the concept of partnership among all actors involved in the production of organic cotton clothing. The company has organized a cooperative chain from the producer to the consumer based on the principle of sharing additional costs as well as benefits related to organic production, with a view to achieving long-term viability and expansion of organic production. The stress is on: (a) communication among partners, (b) consumer-oriented production (answer to consumers' requests), and (c) producer-oriented care (answer to local problems).

The most important project currently undertaken by the company in the area of organic cotton is based on the raw material coming from the Indian region of Madhya Pradesh. Organic quality of cotton is certified by the Swiss Institut für Marktökologie (IMO). Nearly 600 farmers from 75 villages covering an area of around 540 hectares under organic cotton cultivation participate in the project. They are provided extension services, credit at no interest, and enjoy guaranteed purchases, as well as a price premium (20 per cent in 1995). Moreover, development and solidarity surcharges are added to the premium price paid for cotton; the latter serving to finance a social fund to cover weather-related crop failures. Farmers have been actively involved in adapting the organic farming system to local conditions.

In order to increase value added locally, cotton is spun in the region, in a spinning mill of the company Maikaal Fibres. Fibre is dyed using a special environment-friendly range of dyes supplied by Ciba within the framework of its EnviroCare approach.

Clothing is produced by the Swiss manufacturing companies Calida and Sidem, by the German Rakattl as well as by some Austrian producers. In addition, the material used in manufacturing, such as thread, elastics, etiquettes or buttons has to comply with criteria of environmental friendliness, and are preferably of natural origin.

The main retailer is the Swiss Coop which purchases 70 per cent of the cotton supplied by the project. Starting from September 1995, Coop switched its Natura Line programme from sustainable to organic cotton, with the final aim of having all its cotton clothing produced with exclusively organic raw material by the year 2000. Among the products offered are men's, ladies' and children's leisure wear (T-shirts, sweatshirts, blouses, shirts, trousers, jeans, waistcoats, jackets), baby clothing, underwear and socks. In the launching phase of the project, Coop sells Natura Line items at prices equivalent to those of conventional competitors. Any loss is covered from the company's eco-fund. The programme's turnover is expected to reach SF 6.2 million in 1995, increasing subsequently to as much as SF 10.5 million in 1997.

Source: Hohmann 1994; Caldas 1995; *Coopzeitung*, No. 35/1995; *TurnTable Textile Dyes & Textile Chemicals*, No.30/1995; *Blick*, 17 August 1995, P. Hohmann, Remei AG, pers. comm.

example, through taxes on the use of inputs such as pesticides and synthetic fertilizers[31]. It is, however, very important that these economic measures be accompanied by advisory services and training extended to farmers regarding the

[31] The question is not to eliminate the use of pesticides altogether, but to discourage their use through internalization only to the point where this pays, i.e. where the benefits from internalization (value of avoided damage) exceed the related costs (reduction of economic output).

proper use of chemicals, as well as more environmentally friendly alternatives[32], including organic agriculture. There is also a need to change the modalities of granting credits accordingly. However, while removing subsidies and implementing taxes, special compensation measures might be needed to assist those farmers living near the subsistence level who would be affected by the elimination of subsidies.

Farmers are not only providers of food and non-food products, but also play an important role in preserving the local environment. This, together with problems related to financing agricultural surpluses, has led developed countries to start modifying their agricultural policies in the direction of decoupling subsidies from price and production levels or acreage, and introducing direct payments linked to environmental services provided by individual farmers. Some countries have even introduced temporary or permanent subsidies as specific incentives for organic farming[33]. Such moves reflect society's recognition of the environmental attributes of sustainable agriculture and amount to a form of internalization of its environmental benefits.

The implementation of the same solutions could be more difficult in a developing country context, owing to the limited capacity of the public sector to raise the necessary funds and to administer them properly, as well as to the possible occurence of food deficits. However, various instruments are suggested to overcome the budgetary problem and to generate necessary funding, such as (a) redirection of subsidies previously supporting the prices of pesticides and synthetic fertilizers; (b) taxes on environmentally unfriendly inputs, (c) licence fees collected at the registration of legally authorized pesticides. The subsidies would not probably take the form of direct payments, but could serve to support prices of environment-friendly inputs, to finance research and extension services, and in the specific case of organic farming, to finance certification procedures and the development of marketing systems. The transition could also be facilitated by a better access to credit on concessional terms.

2. Research related to organic farming

The lack of technological solutions fitting into different developing country contexts is another constraint which hampers a further proliferation of organic practices in developing countries. With a view to making organic farming more economically viable, further research and tailoring technologies to the individual farming conditions in developing countries are required. Calls are sometimes made for the development of new varieties of plants that would be resistant to pests and diseases and allow to obtain high yields without synthetic fertilizers. However, since the risks associated with genetic manipulation far exceed the possible benefits, the use of genetic engineering is not authorized under organic standards[34]. Other areas of research to be encouraged include biological pest protection methods, including natural

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[32] For example, Indonesia banned a large number of pesticides in 1986 and declared Integrated Pest Management as the national pest control strategy for rice. In order to provide the necessary incentives to this switch, subsidies on pesticides were first cut and then removed altogether. Pest-resistant varieties were introduced and training imparted to more than 50,000 farmers as a part of the IPM package (UNCTAD 1993).

[33] Systems of conversion payments, helping to bridge the period of transition to organic agriculture, are in place in Denmark, Sweden, Norway, Finland, Switzerland, Austria, and Germany while Sweden provides financial support also for the continuation of organic production (Lampkin and Padel 1994).

[34] The main risks include a rapidly developing pest resistance and the emergence of new pathogens even more virulent than the original target organism.

pesticides[35], and the development of viable agricultural practices suited to local conditions[36]. Research into the use of by-products may also help improve the economics of organic farming, as well as the development of upgrading technologies that allow for adding more value to organic products locally (see boxes 2 and 8).

Research to bridge the current technological gap could be financed through the redirection of government funds away from conventional agriculture. The involvement of developing country research organizations is important for the development of technology according to the local needs and for the building-up of local research capacities. Cooperation and assistance may also be sought from international institutions, such as FAO and the World Bank[37], donors and developed country research centres working on sustainable agriculture issues. In practice, technology is often transferred by the developed country partner initiating the particular organic project and adapted to local conditions with the support of this partner.

3. Certification

Certification costs represent a serious burden for organic farmers in developing countries, especially when they have to rely on expatriate certifiers. It is affirmed that the costs of one day's work by a Western expert can equal one-year's wage of an agricultural worker in a developing country (Ranjith de Silva, Asian Coordinator of IFOAM, Sri Lanka, pers. comm.). As a result, many farmers are not in a position to afford such costs even when their production could qualify for organic standards. Organic textile producers are likewise confronted with high certification costs (UNCTAD 1994c). Furthermore, certification procedures are sometimes highly bureaucratic and time-consuming. The time factor can be a hurdle in the current marketplace where flexibility is a precondition of success.

Moreover, a crucial issue in certification is credibility. As a rule, consumers must be assured that the certification mark comes from an independent source which is not influenced by the interests of industry or governments. As regards developing countries, an additional concern may arise regarding the competence of their certification systems as such.

There are various options available that can be suggested to help reduce the costs, improve the efficiency of certification and gain in credibility. First, assistance may be sought from donors[38], as well as cost-sharing with developed country partners, especially in the framework of fair trade projects. Second, local inspectors could be trained, who would work for a Western certification body. This type of cooperation as practised by developed country agencies such as Naturland or KRAV, could evolve into a form of co-certification

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[35] Neem oil and extract, for instance, coming from a tree from the mahogany family and growing in India, Myanmar, Central America and parts of Africa, belong to this new generation of environmentally safe natural pesticides (UNCTAD 1995a). Research is also under way, for example, on pesticide-resistant predator insects (Sparks 1990). In Viet Nam, research on alternative pest control has been carried out since 1975, and natural enemies have been used to fight pests since 1980 (*Pesticides News* No. 29/1995).

[36] For example, Pakistan Organic Farmers Association (POFA) has developed a successful land reclamation practice for saline sodic soil through sowing a saline grass variety, as well as leguminous fodder crops (S.A. Hussain, POFA, pers. comm.). Experiments involving different types of organic matter to replace synthetic fertilizers, crop rotation, biological pest control, and Integrated Weed Management are reported from Taiwan (FFTC 1992), among others.

[37] An Integrated Pest Management Facility has been launched by the World Bank, funded by its contribution of USD 1 million. Further funding amounting to USD 500,000 will be provided by FAO and the initiative will be supported by UNDP and UNEP in its first year (*Financial Times*, 4 April 1995).

[38] For example, SIDA covers the certification costs of the organic cotton project in Uganda - see table 4 (Myers 1995).

(see box 9). Third, on the basis of the experience accumulated and capacity built up in the country, an effort could be made towards establishing a national certification system with the assistance from IFOAM or developed country certification agencies and experts, and with government support. Developing countries should have the possibility to take into account their specific circumstances while formulating these standards. Fourth, accreditation of the national scheme could be envisaged with IFOAM[39]. The country could also apply for inclusion in the provisional list of countries whose systems are equivalent to that of the EU (see box 10). Fifth, the creation of a regional (e.g. Asian) or even better an international organic seal is suggested which could help especially those countries whose limited resources do not allow them to obtain acceptance of their own seal in international markets.

Box 9 - Cooperation in building a national certification system in Bolivia

Organic cocoa was first exported from Bolivia in 1987, certified entirely by foreign inspection bodies, with all the consequences in terms of high costs and dependence on external certification sources and marketing companies. The AOPEC (Asociación de Organizaciones de Productores Ecológicos de Bolivia), founded in 1991, launched an ambitious certification capacity-building programme. It was assisted by a German certification agency, Naturland, one of those accredited for delivering organic product certificates according to the EU rules.

A Bolivian certification scheme has thus been set up, adapted to local agroecological and cultural conditions while conforming also to IFOAM and EU standards. Local inspectors began to inspect and certify the products in 1993. Starting from 1994, the programme has been jointly managed by the AOPEB and Naturland in the framework of co-certification. As yet, 77 per cent of all Bolivian cocoa exports is certified as organic and sold to consumers in developed countries under the label of Naturland.

The AOPEB is currently able to satisfy all the certification needs of small organic producers in Bolivia and has begun to receive requests also from plantations. Its activities have expanded beyond cocoa into coffee and Brazil nuts. The association has been officially recognized in its certification capacities by the Bolivian government, and is now seeking accreditation by IFOAM and recognition by the EU, with the purpose of enhancing its independence in the area of certification.

Among the principal merits of the programme are: (a) the reduction of certification costs by a half (from an average of USD 4,000 to USD 2,000 per certificate) as a result of using local inspectors, (b) increased awareness among producers, who have been consulted on norms, accepted production practices and market requirements in developed countries and (c) higher returns to farmers, among other as a result of a fair trade element in this project, which consists in bypassing intermediaries and selling directly to customers in OECD countries.

Source: UNCTAD 1995a

4. From a niche to the mainstream

The current niche character of most organic products has had negative implications on their competitiveness and sales. It is therefore important that these products move from niche market to the mainstream, thereby obtaining

[39] Accreditation with IFOAM has major advantages from a market perspective. It increases the credibility of the programme by building on IFOAM's reputation, and facilitates recertification by importing country bodies. Moreover, the USA, and probably also Canada, are likely to recognize IFOAM accreditation as equivalent to their own standards.

Box 10 - Certification of organic products in Argentina - equivalency with the EU

Organic farming and exports in Argentina have benefited from government's support in the field of certification. In 1991, the government established IASCAV (Instituto Argentino de Sanidad y Calidad Vegetal*), which is affiliated with the Ministry of Agriculture, Animal Husbandry and Fishing. The Institute is in charge of supervision of organic plant production. It is also responsible for the elaboration of standards and accredits and supervises private certification bodies. The objective is to provide clear guidelines for producers, as well as a guarantee of organic origin for consumers.

The activities of IASCAV are carried out in close cooperation with other public and private actors involved in organic farming and trade. This cooperation was formalized in 1992 with the set-up of a Technical Advisory Committee for Organic Production aimed at counselling IASCAV on matters relating to organic products. Among the members of the Committee are representatives of producers, traders, consumers, research institutes, extension bodies, NGOs, and the government.

The work on norms was initiated in 1990, starting with a review of existing international norms, in particular the EC Regulation 2092/91 and IFOAM standards. The first Argentine standards on organic production were adopted in 1992. The National Registry of Certification Agencies for Organic Production was set up during the same year.

Following the establishment of this legal framework, Argentina submitted an official request to the European Commission asking to be included in the provisional list of countries whose certification systems are recognized as equivalent to those of the European Union. The documentation annexed to the request included texts of standards, description of the Argentinean system of control, a list of accredited certification bodies, a list of inspected farms, a list of organic products of plant origin which can potentially be produced by Argentina, and comments by international experts on the situation of organic farming in the country.

After the completion of a variety of such obligatory procedures, Argentina became the first developing country to obtain a place in the EU provisional list. This recognition of equivalency for its certification system has facilitated the penetration of Argentinean products into the EU market, thus enabling the country to assert itself as one of the world's major exporters of organic products.

Source: based on A. Batista, IASCAV, pers. comm.

* The responsibility for organic products of animal origin is with SENASA (Servicio Nacional de Sanidad Animal).

economies of scale advantages[40]. Lower costs in such an event could result in more acceptable prices, which, in combination with better availability of organic products in a greater number of shops, would help expand both supply and demand.

In this context, market outlets susceptible to absorb larger quantities of organic products have to be identified and developed. Three main options can

[40] For example, the market leader in milk products in Switzerland, ToniLait SA has concentrated its entire organic milk processing in its factory in Basel, with a view to rationalizing and cost-cutting (Pfister 1995). In cotton processing, consolidated quantities of raw material have made it possible for some mills to maintain a completely separate run of organic cotton, thereby eliminating the need for costly shutdowns and cleaning procedures (Grose 1995).

be envisaged in this regard, namely: (a) setting up chains of smaller supermarkets specialized in organic foods, (b) introducing these products to the same retailing outlets which trade in conventional items, such as supermarkets (see box 11), and (c) targeting other large intermediate consumers, such as restaurants, catering services or canteens providing services for large number of clients, e.g. for government officials. Government procurement guidelines favouring organic products would be highly useful in this respect. For example, organic food is already available in the canteen of the German Parliament and Max Havelaar coffee is served in the Dutch and Swiss Parliaments. To the same effect, some universities/colleges and enterprises have introduced organic coffee as the brand served in their cafeterias.

A regular and reliable supply of adequate quantities of these products is a major prerequisite for the acceptance of organic products by large-scale operators. The scale problem is sometimes further exacerbated by the fact that for example coffee or clothing are not made from raw material from a single source. To alleviate this constraint, traders and processors need to look for new suppliers. Producers can also work towards the alleviation of the scale constraint by forming cooperatives, thus enhancing their capacity to supply larger quantities of products, which would match large customers' requirements. Adequate incentives on the part of producers are another important factor with a bearing on the level of supply. Premium prices for products/areas where they do not exist, as well as direct marketing allowing for a higher part of the price being passed on to the producer can be instrumental in this regard. Post-harvest losses could also be reduced as a result of faster shipment to final customers and better storage and transportation facilities. Governments at the central as well as local levels may be instrumental in dealing with this issue, as well as in providing organic producers with marketing facilities[41].

B. Measures to foster information flows

Insufficient information for producers about production practices, financial performance and market potential is a major constraint at the supply side in getting farmers to adopt organic practices. Likewise, on the demand side, increased consumption may be hampered due to lacking awareness among potential consumers concerning the attributes of organic products and their availability. Measures are therefore needed to close this information gap.

1. Information for producers

Even producers in developed countries complain of difficulties in gaining access to information about organic practices, which may often be available only through books, magazines or friends working in the same area. The lack of relevant information and know-how is even more felt in developing countries, due to the scarcity of literature dealing with organic agriculture in this specific context, farmers' inability to follow existing literature, limited dissemination of positive experiences already acquired, and frequent bias of extension services and agricultural education systems in favour of conventional high-inputs practices.

At present there is very little advice or training available for farmers in developing countries who want to produce organically. Since organic farming implies new production and management approaches, the need becomes obvious for comprehensive technology solutions for the preparation and implementation of the conversion process, so that farmers may make informed choices based on a thorough understanding of their local agroecological capacity and the market system.

To date, most advice and training is channelled to farmers through private projects initiated by developed country importers and NGOs. However, in order to increase the impact of extension beyond the scale of individual projects, governments should also take the initiative and reallocate resources towards the provision of advice to farmers on environmentally sustainable production

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[41] For instance, municipal authorities in Seoul, Republic of Korea, will allocate 660 square metres in the city's wholesale market for the establishment of an organic products centre, with a view to facilitating the distribution of these products (Ryu 1995).

Box 11 · Coop NATURA Plan - bringing organic foods to supermarkets

Coop was the first supermarket chain in Switzerland to incorporate organic foods into its standard offer. The programme NATURA Plan, launched in 1993, has met with positive reactions from consumers. The turnover of organic foods has grown from SF 13 million in 1993 to SF 31 million in 1994 and is expected to reach SF 83 million in 1995, which represents an annual increment of 60 per cent.

Among the main products offered are cereals, bread, fruits and vegetables, yoghurts, cheese, milk, eggs, chickens, beef, wine and apple juice. Organic quality is certified according to standards set by the Swiss Association of Organic Agriculture Organizations (for plant products) and the Swiss Association of Foster Cows and Breeding Cows Keepers (for beef). The products carrying a Coop NATURA Plan label are sold with a 15-20 per cent premium, as compared to conventional items.

Demand for organic products currently outstrips supply on the Swiss market, mainly because standards and quality requirements are very strict. Swiss norms are more demanding than those in the EU and require entirely organic practices at each farm level while the EU legislation allows for a partial conversion of farms.

In order to attract new suppliers, Coop has launched an extensive information campaign targeted at Swiss farmers. The main argument used by the company is that, given the inevitable trend towards budgetary cuts, liberalization of agricultural trade and the resulting expected fall in prices, organic agriculture provides an opportunity for farmers to keep a relatively higher price level by moving into premium products. Around 2,800 farmers have responded to this initiative in terms of asking for more information about organic farming and for contacts with the Swiss Association of Organic Agriculture Organizations.

Since a stable and regular supply of economically viable quantities is essential for commercial success at the supermarket scale, the Coop's strategy has been to introduce only products which meet these criteria. However, faced with an insufficient supply on the one hand and excess consumer interest on the other, the company decided to commercialize also products which are currently available only in limited quantities, but which have the potential for future growth. These products are only sold regionally.

Coop has also been actively working to disseminate information and increase awareness among consumers. It supported the need for more sustainable production patterns in agriculture during the campaign preceding the vote on the acceptance of the agricultural law in Switzerland. Information is also channelled to consumers through the company's publications, information brochures and leaflets which are available in shops or upon request, and by presenting organic products in fairs. The introduction of organic foods into the Coop's offer is a part of the overall drive to build a green image of the company.

Source: Felder 1995; *Coopération* No. 37, 14 September 1995; Ch. Bühler, Coop, pers. comm.

methods, and prepare effective supportive programmes for organic farming (see box 12). Participatory strategies should be applied while providing extension

services[42] that involve farmers and their organizations and take into account their needs, conditions and motivations.

Box 12 - Government support to organic agriculture in China

Organic agriculture in China is viewed as an effective way of fostering economic development, especially in rural areas, while improving people's health and the environment. In view of the importance of this issue, the China National Environmental Protection Agency (NEPA) founded the Organic Food Development Centre in 1994. The Centre, which draws on extensive work already undertaken in China in the area of "green food"*, is responsible for the development of organic food, particularly for inspection, certification, research, extension, training and education relating to organic farming. Among its main activities are:

(a) elaboration of organic production standards. Draft versions of "China's Organic Food Production and Processing Standards" and "Administrative Regulation for Organic Food Label" have already been prepared.

(b) certification of organic products. Organic food trade mark and logo have been legally registered and products such as soybeans, wheat, buckwheat, tea, honey, chestnut, some vegetables and juices have been or are being certified.

(c) research on and experimental production of organic rice, wheat, strawberries, onion, lettuce, tomato, Chinese cabbage, as well as organic fish breeding.

(d) simultaneous promotion of the national organic market and assistance to producers in introducing their products to international markets. Organic tea has been developed with the Dutch certification agency SKAL and work is under way with OCIA and a Japanese partner on organic soybeans.

(e) systematic publication of foreign documents, particularly standards concerning organic agriculture, in Chinese translation. Arrangements are also made for publishing the journals "Organic Agriculture in China" and "Newsletter of Chinese Organic Food". Publicity on organic food is also made through radio, newspapers, magazines and workshops/meetings.

(f) training in the development of organic food. Two training workshops were organized in 1994 and 1995 designed for government officials, research and university faculty, enterprises and grassroots participants. Around 40 specialists were trained per seminar. Two training courses on organic tea and soybeans have also been conducted.

Source: Xiao and Ding (1995); *IFOAM Asian Regional Network Newsletter*, No. 6, July 1995

* The notion of "green food" is closer to sustainable production since limited use of chemicals is authorized. The China Green Food Development Center was founded in 1990, and is responsible for activities in this area. Green food has become one of China's Agenda 21 priority programmes (L. Lianfu, China Green Food Development Center, pers. comm.).

[42] To this end, the World-Bank-sponsored Integrated Pest Management Facility, for example, will involve non-governmental organizations operating at the village level, such as the Kenyan Institute of Organic Farming, which have experience in participatory training methods (Financial Times, 4 April 1995). In the same vein, a pilot extension project in the Dominican Republic provided training on sustainable agricultural methods to trainers selected among local farmers. The work of these "barefoot agronomists" working on the projects alongside their government counterparts was considered very effective (World Watch, Jan-Feb 1993).

Farmers associations are also well-placed to provide advice through the organization of capacity building to their members[43]. Model demonstration farms are sometimes used to disseminate know-how about organic farming. They serve as a form of local extension learning centre where farmers can come and familiarize themselves with organic cultivation. Workshops, seminars and training are organized at these farms regularly, and on an ad hoc basis. Furthermore, agricultural schools may be created as a part of such farms' extension activities.

A variety of forms of external assistance exist which may be of significance in improving the access of farmers to information and know-how on organic agriculture. Donors may be approached to provide resources to set up organic agriculture information centres[44]; to carry out research on organic farming systems; to help prepare feasibility studies for organic projects; to translate and issue publications on organic farming, and to provide assistance to arrange for exchange visits for farmers.

Extension does not need to rely only on expatriate experts since in a number of developing countries substantial research on various aspects of sustainable and in particular organic farming has already been undertaken. In addition, there may be local institutions which have the necessary expertise. Regional cooperation in human resources development among developing countries should be encouraged, as well as the sharing of experiences among countries with similar ecosystems. Creation of a network of institutions with interest and expertise in organic farming under developing country conditions may also help in this respect.

There are lacunae also in other areas of utmost importance for developing country organic producers, namely market intelligence and marketing know-how[45]. Better access to market information concerning market trends, importing country requirements in terms of certification, packaging and other import regulations is therefore needed by producers. Governments could play a role in this respect. Given the rudimentary nature of key market data such as production, consumption, trade and prices, it would be worthwhile to collect and publish relevant data at the international level. This would increase market transparency and, among others, avoid uncoordinated investment leading to potential oversupply. Another valuable source of market information (also for consumers/importers) is participation in organic fairs[46], sponsored by the government or donors[47]. In

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[43] In the Republic of Korea, for instance, following the decision of the National Association Cooperative Federation (NACF) in 1990 to provide education in organic farming to its 2 million members, Korea Organic Farming Association (KOFA) delivers training to about 2,000 NACF units every year (*Ecology and Farming*, September 1995).

[44] The Heinrich Böll Foundation in Cologne, Germany, is supporting organic agriculture information centres in Poland and Latvia, for example. Similar centres established in Hungary, Poland and the Czech Republic enjoy financial support from the German Foundation "Stiftung Leben und Umwelt"(*Ecology and Farming*, Nos. 9 and 10, May and September 1995). The EU-Phare/GEF Danube programme provides funds for three organic farming demonstration, research and education centres in Bulgaria, Romania and Hungary (B. van Elzakker, Agro-Eco, pers. comm.).

[45] In fact, most successful organic producers/exporters are linked, either through ownership or close association, to a developed country company which takes care of the marketing side of the project.

[46] Among the most important organic trade fairs in Europe are: Valeriane in Belgium, Marjolaine and Dietexpo in France, Biofach and Pro Sanita in Germany, Herbora and Sana in Italy, Biocultura in Spain, Helthex in the United Kingdom, and Varena and N & R in the Netherlands (Pakenham-Walsh 1994).

[47] For example, GTZ-Protrade sponsored the participation of some organic producers and traders from Sri Lanka in the Biofach Trade Fair in Germany in 1995.

fact, in some developing countries like Argentina and Costa Rica organic exports have been taken aboard on non-traditional exports programmes[48].

Capacity-building in management and marketing techniques is also important, even though such training is more relevant to staff working directly in sales. Small producers may need to associate themselves for a more efficient conduct of marketing operations. Cooperation/partnership with importers remains crucial for success in marketing organic projects. By helping producers to establish contacts with potential importers/consumers from industrialized countries, governments, international organizations and NGOs can also be instrumental in facilitating producers' access to international markets.

2. Information for consumers

Despite growing environmental and health consciousness, consumers are not always aware of specific issues, such as the impact on the environment of conventional agriculture and the merits of more sustainable production practices, including organic farming. In more concrete terms, they may lack information about specific organic products, their attributes (environmental and health merits, as well as their quality) and availability.

Public awareness programmes can help improve the level of general information provided to consumers. The need is felt not only for giving more information, but especially for educating the consumer to interpret and use this information effectively. It is only when consumers understand and accept the concept of sustainable agriculture, including the rationale for paying higher prices for organic products, that there will be more demand for these products, and thereby more incentives for farmers to practice organic farming. Apart from stressing environmental and health attributes, the perception problem of consumers' reluctance to accept products which are somewhat blemished or not uniform and less attractive in appearance also needs to be overcome. Information campaigns through radio, television, and the press can be useful in this respect.

Moreover, specific information on organic products that are available on the market should be diffused to consumers. This is frequently done through promotional campaigns, information leaflets, magazines, bulletins, lectures and the presentation of products in exhibitions and fairs. The education and motivation of personnel working in organic products' sales is also of utmost importance since they are the direct source of information for customers.

Consumers can get the information needed from a number of sources. First, producers/traders play a crucial role in providing information about organic products that they produce and commercialize. Information supplied by them is often comprehensive, but may be perceived as one-sided or sometimes even misleading. Second, governments should take the lead in general environmental education, and also in the establishment of norms regulating the use of environmental claims, including product labelling. This source of information is generally considered more credible. Third, environmental and consumer groups may have a major impact on shaping consumer preferences, given their independence from producers and the government. Endorsement of organic products by NGOs may therefore constitute an important guarantee of credibility for consumers.

The role of information is even more crucial when production and consumption occur in geographically distant countries. In this context, partnership and cooperation geared towards the strengthening of information flows among producers and consumers become even more important. Bringing both parties together is a task which can be accomplished at the individual project

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[48] In Argentina, PROMEX (Promoción de Productos Agricolas No Tradicionales) has promoted the participation of producers and traders in various trade fairs and conferences. The Exporter Foundation under the Ministry of Foreign Affairs has organized seminars and study tours and invited marketing experts from the United States to Argentina.

level[49], as well as on an international scale. In the latter case, international organizations involved in organic agriculture/trade/development issues could facilitate information flows and contacts by organizing fora where both producers and importers/consumers could meet.

Another possible action that would serve producers and consumers alike might consist of compiling information on different organic products into "product sheets" which could be made available through existing information networks or other media. Product sheets could include data on: (a) environmental and quality/technical attributes of individual organic products; (b) standards, certificates and procedures to meet in order to enter different organic markets, and (c) potential suppliers and importers.

VI. CONCLUSIONS

Organic production has an undeniable edge over conventional farming in terms of its beneficial impact on the environment and human health. Moreover, it can also contribute to higher incomes, better food security and creation of employment. On the other hand, there remain questions about its economic viability, and to a lesser extent its technical feasibility in different agro-environmental and social contexts. For these reasons, organic agriculture does not currently represent a universally applicable large-scale model for developing countries. Despite this fact, it has a considerable potential for projects in areas with favourable natural conditions (especially in terms of pests-predators balance and soil fertility) allowing for an economically viable production.

The present niche nature of the market (between 1 and 2 per cent of the food market in industrialized countries and probably much less than 1 per cent in developing countries) is a major impediment to the attainment of economic profitability in organic production as compared with conventional agriculture and, consequently, also a constraint to its further proliferation. Since production is not always very profitable and requires specific knowledge and an enabling environment, volumes shipped to market tend to remain rather low, prices relatively high and products not very well known. As a result, market demand may not be strong enough to induce increases in production, either because consumers are reluctant to pay higher prices or simply because they are not aware of the merits or even of the very existence of organic products.

As regards supply, the currently available partial recognition of organic products' environmental merits in the form of price premia may not always provide sufficient compensation for possible lower yields and higher production costs, and stimulate production increases. However, in view of the increasing attention being paid to the environmental aspects of agriculture, policies are already being implemented in industrialized countries - and are beginning to gain importance also in a number of developing countries - which penalize environmentally harmful production methods and encourage more sustainable forms of agriculture. The elimination of subsidies with negative environmental effects, gradual taxation of environment-unfriendly inputs (e.g. pesticides) or the adoption of mandatory technologies (such as integrated production standards) are steps towards the internalization of environmental costs in agriculture. In the medium to long run, these measures are very likely to help put agriculture on the sustainability path by making environmentally friendly techniques, including organic agriculture, more competitive.

Apart from economic incentives, other factors which have an important bearing on farmers' decision to "go organic" and, consequently, on the level of supply include the availability of technological solutions, as well as environment-friendly inputs for organic farming, accompanied by the dissemination of such information. Enhanced research into organic agriculture, the availability of effective extension services and capacity building may be instrumental in this respect.

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[49] For example, Equal Exchange organizes regular visits to El Salvador farmers by the representatives of coops that buy fair trade coffee. Both parties thus gain an understanding of their counterparts' situation, which has a positive impact on mutual relations (*Java Jive*, September 1995).

On the demand side, general environmental awareness-raising should be complemented by action focusing on issues related to agriculture and the environment, and on health and healthy styles of living. It is of particular importance that consumers understand the rationale behind consuming organic products and that they modify their consumption patterns accordingly. Moreover, less general and more practically-oriented information should also be at hand about different organic products and their availability. As organic products are not distinguishable at first sight from conventional ones, the assurance of the products' organic origin becomes an important issue for consumers given the higher prices they are supposed to pay. To this end, the establishment of credible certification schemes should be encouraged. Some mainstream retailers are already anticipating the forthcoming change in consumers' preferences by making commitments to deal only in sustainable or organic products.

A crucial prerequisite for a further expansion of organic production in developing countries is the involvement and cooperation of all the actors along the production-consumption chain. National and international partnerships including Governments, international organizations, the private sector and NGOs from both developing and developed countries are of utmost importance in this regard. This is all the more true because production and consumption often take place in geographically distant and economically and socially different areas and, as a result, the establishment of contacts between producers and consumers becomes more difficult.

Governments in developing countries should aim at providing an economic environment conducive to the development of sustainable or, even more specifically, organic production, and be supportive to the private sector and NGOs' initiatives in this regard. At the same time, however, the private sector and NGOs in both developing and developed countries would probably take the lead so as to become the main driving force behind the enhancement of organic production.

Even though organic products will continue to be a niche market in the short to medium term, a gradual shift on both the supply and demand sides towards the mainstream could be achieved in the longer run. Commitments by developed countries in terms of a move towards sustainable or organic practices may help foster acceptance of these products. They could also result in an increased availability of relevant information about - and, hence, better acceptance by - consumers of organic products, including those imported from developing countries. Rising environmental awareness, attention paid by governments to measures countering adverse environmental impacts of conventional agriculture, and growing levels of income in developing countries are also likely to contribute eventually to the creation and expansion of markets for organic products in their own economies.

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List of people contacted

Argentina	Mr. Juan C. Batista Instituto Argentino de Sanidad y Calidad Vegetal (IASCAV) Buenos Aires
	Mr. Daniel Mones Cazón Fundación Alimentos Ecológicos Argentinos (FAEA) Buenos Aires
Australia	Ms. Stephanie Goldfinch Certification Co-ordinator The National Association for Sustainable Agriculture Australia Ltd. (NASAA) Stirling
Belgium	Mr. Michel Boulanger Probila-Unitrab Horebeke
Bolivia	Mr. Raúl Veliz President Asociación de organizaciones de productores ecológicos de Bolivia (AOPEB) La Paz
Brazil	Mr. Sérgio Pedini Executive Secretary Associação de agricultura orgânica (AAO) São Paulo
Chile	Mr. Víctor López del Pino Tierra Viva Santiago
China	Mr. Liu Lianfu Chairman China Green Food Development Center Beijing
	Mr. Xingji Xiao Organic Food Development Center of China - National Environmental Protection Agency Nanjing
Germany	Mr. Bernward Geier General Secretary IFOAM Tholey-Theley
	Ms. Manon Haccius General Secretary ArbeitsGemeinschaft Ökologischer Landbau Darmstadt
	Mr. Martin Kunz General Secretary TransFair International Schorndorf
	Mr. Ralph Munz Oasis Teehandel GmbH Empfingen
	Ms. Elke Röder Bundesverband Naturkost-Naturwaren Grosshandel Hürth

	Mr. Conrad Thimm Milupa Friedrichsdorf
India	Mr. M. Madhukar Reddy Society for Organic Agriculture Secunderabad
	Mr. M.C. Muthanna Executive Director The Bombay Burmah Trading Corporation Ltd. Bombay
Mexico	Mr. José Dardón Asociación Mexicana de Agricultores Ecológicos (AMAE) Chiapas
The Netherlands	Mr. Boudewijn van Elzakker Agro Eco Utrecht
	Mr. Volkert Engelsman EOSTA Baarn
	Mr. Joost Pierrot Simon Lévelt Haarlem
	Ms. Nicole Waayer SKAL Zwolle
Pakistan	Mr. Syed Asad Hussain President Pakistan Organic Farmers Association Lahore
Sri Lanka	Mr. N.M. Abdul Gaffar Stassen Natural Foods Ltd. Colombo
	Mr. Ranjith de Silva Asian Coordinator IFOAM Galaha
Sweden	Mr. Gunnar Rundgren KRAV Uppsala
Switzerland	Mr. Rainer Bächi Director Institut für Marktökologie (IMO) Sulgen
	Ms. Christine Bühler COOP Schweiz Basel
	Mr. Patrick Hohmann Remei AG Rotkreuz
	Mr. Lois Zanoni Bio Cultura Zug

Turkey	Mr. Suat Şehirlioğlu ISIK - Işik Tarin Ürünleri Sanayi ve Ticaret A.Ş. Izmir
United Kingdom	Ms. Dorothy Myers The Pesticides Trust London
United States	Mr. Thomas Harding President AgriSystems International Wind Gap
	Mr. Jonathan Rosenthal Executive Director Equal Exchange Stoughton